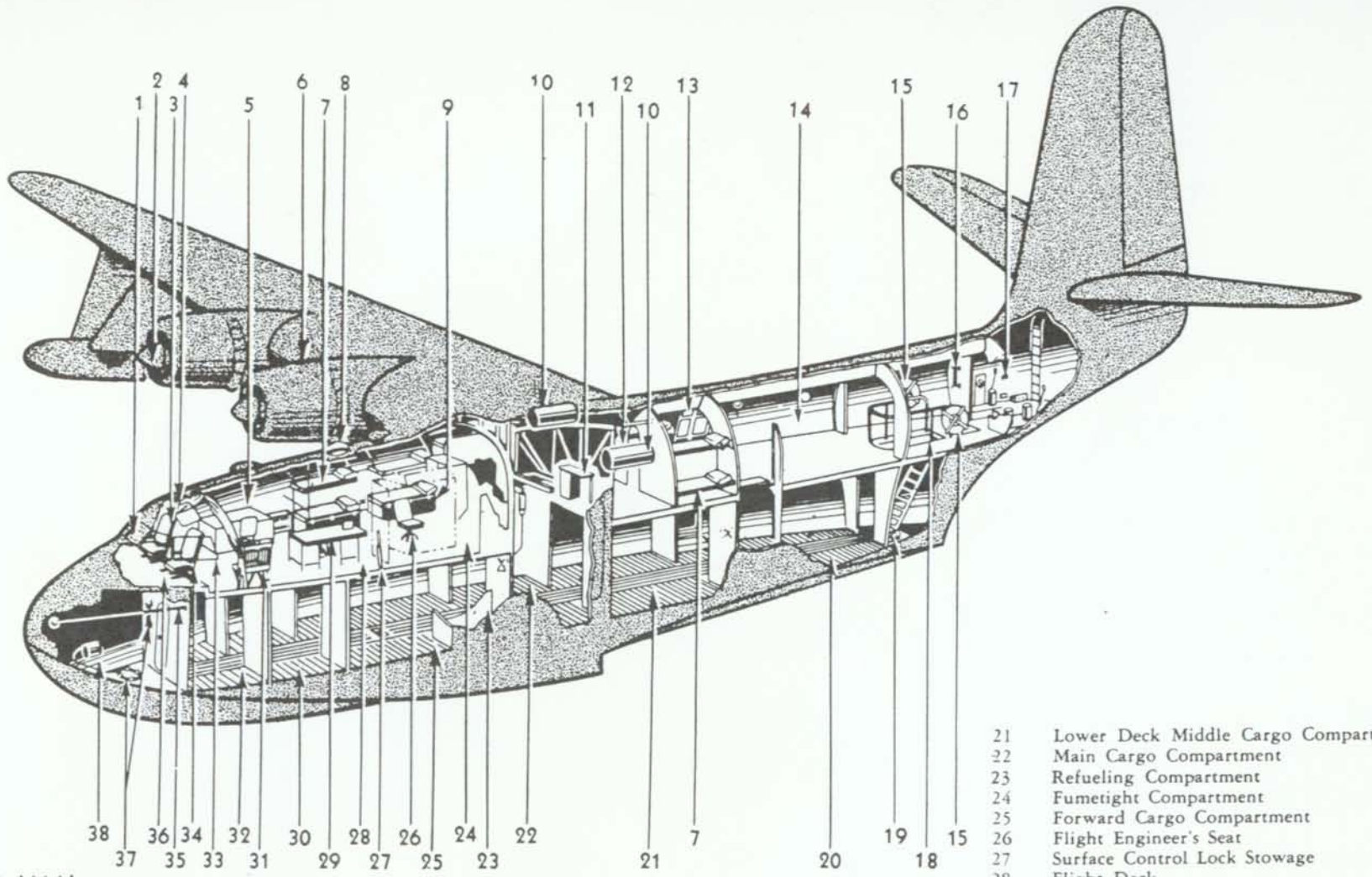
NAVAL FIGHTERS NUMBER TWENTY-NINE

MARTIN MARS

XPB2M-1R & JRM

FLYING BOATS

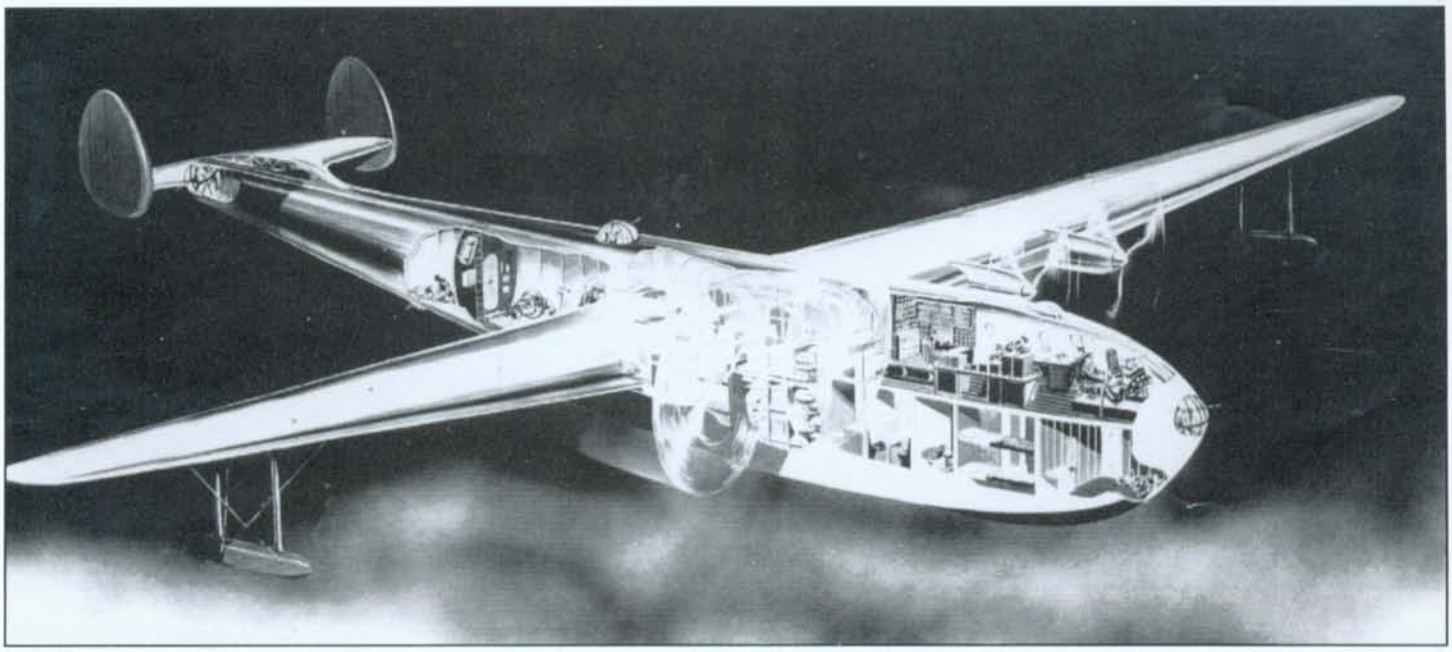
BY STEVE GINTER



1 Windshield
2 Spinner Cover 472581
3 Copilot's Seat 262AS1, Warren McArthur Corp.
4 Sun Shade 472571
5 Radio Operator's Table 489008 and Seat 189A
6 Engine Cover
7 Bunks
8 Navigator's Dome Cover
9 Deadlight Covers Stowage
10 Life Raft
11 Foghorn and Signal Light Stowage Bench
12 Auxiliary Power Plant Compartment
13 Aft Crew Quarters
14 Upper Deck Aft Cargo Compartment
15 Sea Anchor
16 Rope Stowage LH and RH
17 Lavatory
18 Stair Well
19 Bilge and Refueling Pump
20 Lower Deck Aft Cargo Compartment
21 Lower Deck Middle Cargo Compartment
22 Main Cargo Compartment
23 Refueling Compartment
24 Fumetight Compartment
25 Forward Cargo Compartment
26 Flight Engineer's Seat
27 Surface Control Lock Stowage
28 Flight Deck
29 Navigator's Table and Seat
30 Entrance Compartment RH, Galley LH
31 Two-Man Seat
32 Baggage Compartment
33 Sliding Enclosure
34 Pilot's Seat
35 Boat Hook Stowage
36 Pilot's Compartment
37 Rope Stowage
38 Anchor Compartment

Fixed Equipment Diagram

NAVAL FIGHTERS NUMBER TWENTY-NINE, THE MARTIN MARS



FRONT COVER:
Top, the XPB2M-1R after the original propellers were replaced with 16 ft. 6 in. Hamilton Standard props. (via John Fry) Bottom, the single tail JRM-1 Hawaii Mars after launch ceremonies in July 1945 at Martin's Middle River Plant. (Martin via Stan Piet)
BACK COVER:
Two views of Forest Industries Flying Tankers Limited (FIFT) Hawaii Mars C-FLYL at Sprout Lake, British Columbia, in 1994. (Gary Vincent)

Anyone having photos or other information on this or any other naval or marine aircraft may submit them for possible inclusion in future issues. Any material submitted will become the property of NAVAL FIGHTERS unless prior arrangement is made. Individuals are responsible for security clearance of any material before submission.

ISBN 0-942612-29-9

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DEVELOPMENT

Design work for the Martin "Mars", the largest active-duty flying boat the world would ever see, started in 1935. After reviewing proposals submitted by Consolidated, Boeing, Vought-Sikorsky and Martin, Martin received a contract for a long-range patrol bomber designated the XPB2M-1 "Mars" on 23 August 1938. The final document, contract number 62482, was signed on 1 January 1939. The patrol bomber's keel was laid on 22 August 1940, and the aircraft, known affectionately as the "Old Lady," was rolled from its hangar on 27 September 1941.

Above, early Martin concept dated 5-4-38 for a "Flying Dreadnought" which became the "Mars" flying boat. (Martin via Stan Piet)

THE XPB2M-1 / -1R

TYPE: long-range maritime reconnaissance bomber (crew, eleven).
ENGINES: four 2,200 h.p. Wright R-3350-18 Duplex Cyclone eighteen-cylinder, radial air-cooled engines.
PERFORMANCE: maximum speed, 221 m.p.h. at 4,500 ft., 205 m.p.h. at sea level; cruising speed, 149 m.p.h.; initial climb rate, 440 ft. per min.; service ceiling, 14,600 ft.; maximum range, 4,945 miles.
WEIGHTS: empty, 75,573 lbs.; loaded, 144,000 lbs.
DIMENSIONS: span, 200 ft.; length, 117 ft. 3 in.; height, 38 ft. 5in.; wing area, 3,683 sq. ft.

The completed XPB2M-1 was moved to the seaplane ramp at Middle River and launched on 5 November 1941 from Martin's Middle River Plant. During the next month, equipment was fitted and engine and system tests were conducted while at

Above, the XPB2M-1 was rolled out of its hangar for the first time on 27 September 1941. The B-26B-1 parked under the wing gives an indication of the enormous size of the Mars. (Martin via S. Nicolau)

anchor. On 5 December, during engine tests, the right inner propeller would not reverse and went into a flat pitch. The engine caught fire, throwing a propeller blade through the fuselage, almost injuring the flight engineer. The anchor was removed and the aircraft was run aground in an effort to save it. The engine burned free and fell from the fuselage, where the fire was eventually put out by arriving fire trucks.

The engine was replaced and the fuselage was repaired in under 30 days. By 2 January 1942, the XPB2M-1 was towed to the seaplane ramp for final system testing. The

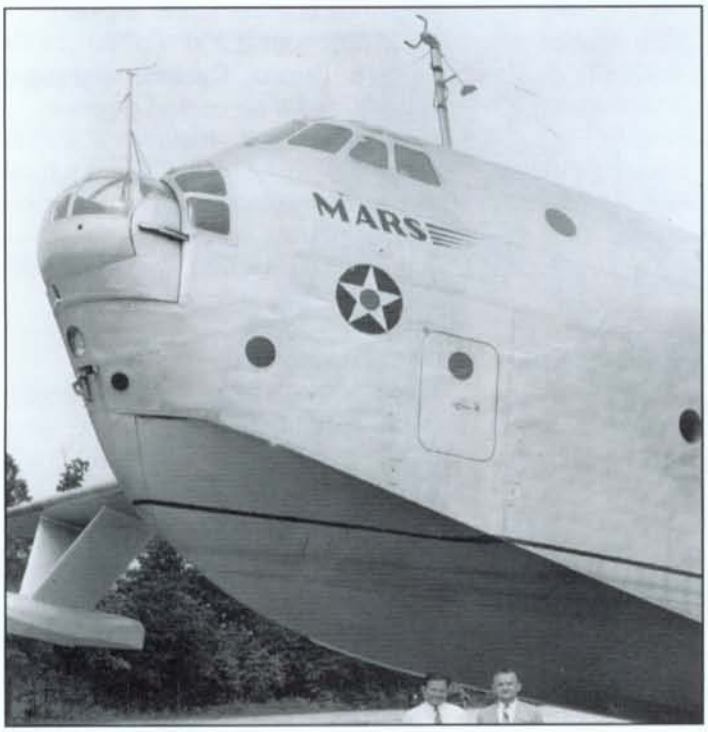
At right top, the XPB2M-1 with launching pennants attached on 8 November 1941. (Martin via Stan Piet)

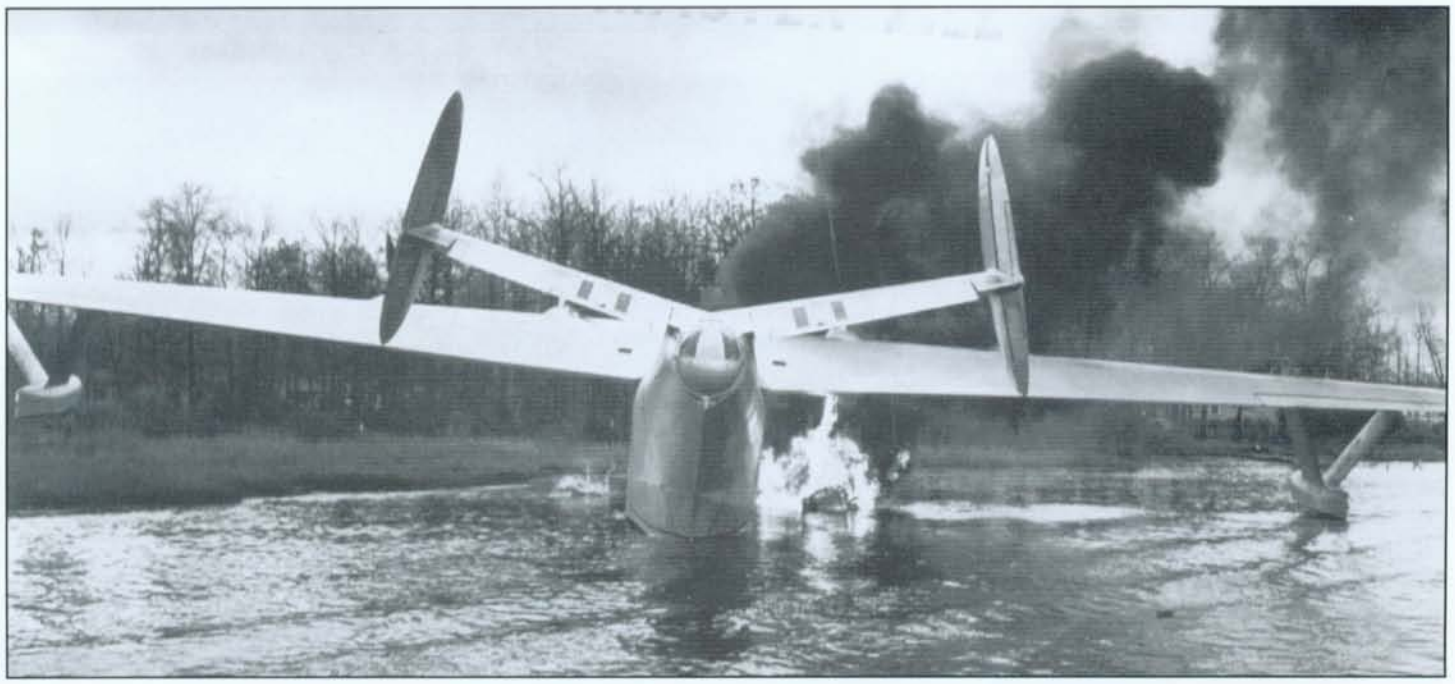
At right middle, the XPB2M-1 after launching from "D" building ramp into Dark Head Cove on 8 November 1941. (Martin via Stan Piet)

At right, bottom, the XPB2M-1 after it was run aground and the engine burned free from the wing and fell into the river on 5 December 1941. (Martin via Stan Piet)

Below, the wing bomb bay hoist and door with five fuseless bombs installed. (Martin via Stan Piet)

Below, the bow turret and cockpit area of the "Old Lady" on 8 August 1942. (Martin via Stan Piet)

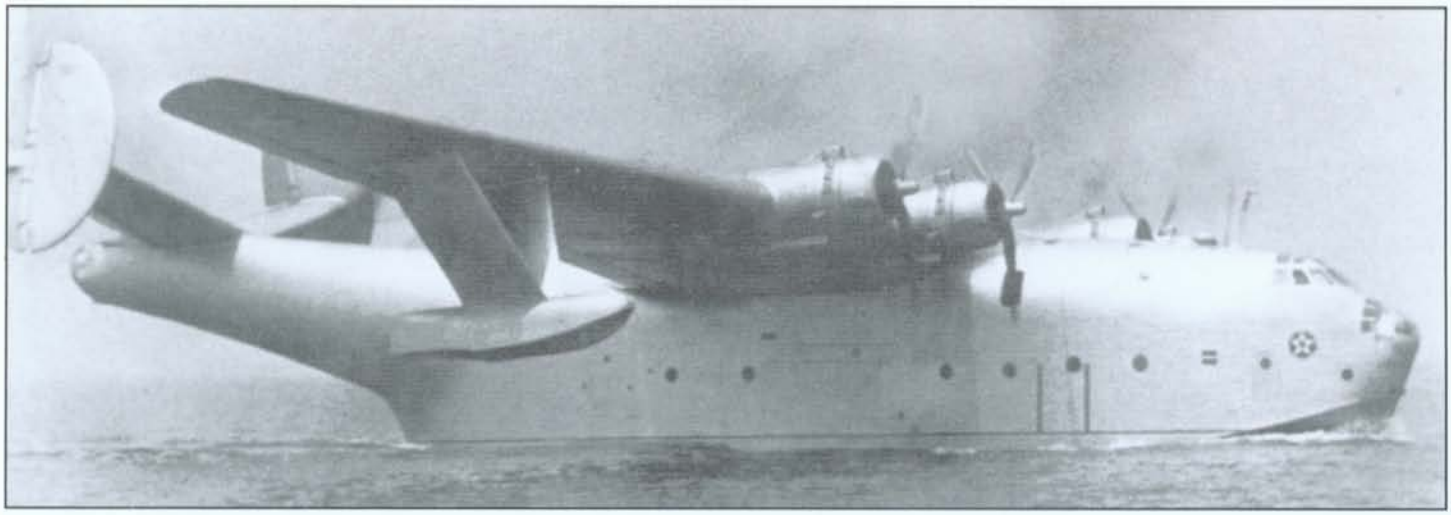




"Old Lady" still had the original 2,000 hp. engines and wooden three-bladed props installed. Prior to the first flight on 23 June 1942, the engines were replaced with 2,200 hp. versions and metal 16 foot 6 inch Hamilton Standard three-bladed propellers. The aircraft remained in Martin hands for testing until November 1942. During this time, the design payload of 30,000 pounds was lifted on at least two occasions. The final company flight, on 4 and 5 October 1942, covered 4,600 miles in 32 hours and 17 minutes.

At the time of transfer, the bow and tail turrets had been removed.

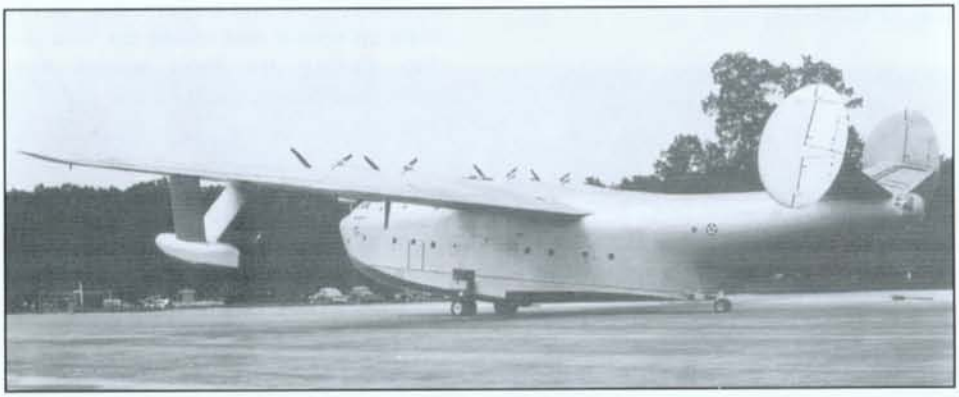
Above, the XPB2M-1 conducting engine tests on the seaplane ramp after repairing the fire damage. Below, by 13 May 1942, the original wooden propellers were replaced with metal ones. The aircraft was painted silver with the wing leading edge and upper wing surfaces painted in chrome yellow. (Martin and USN)



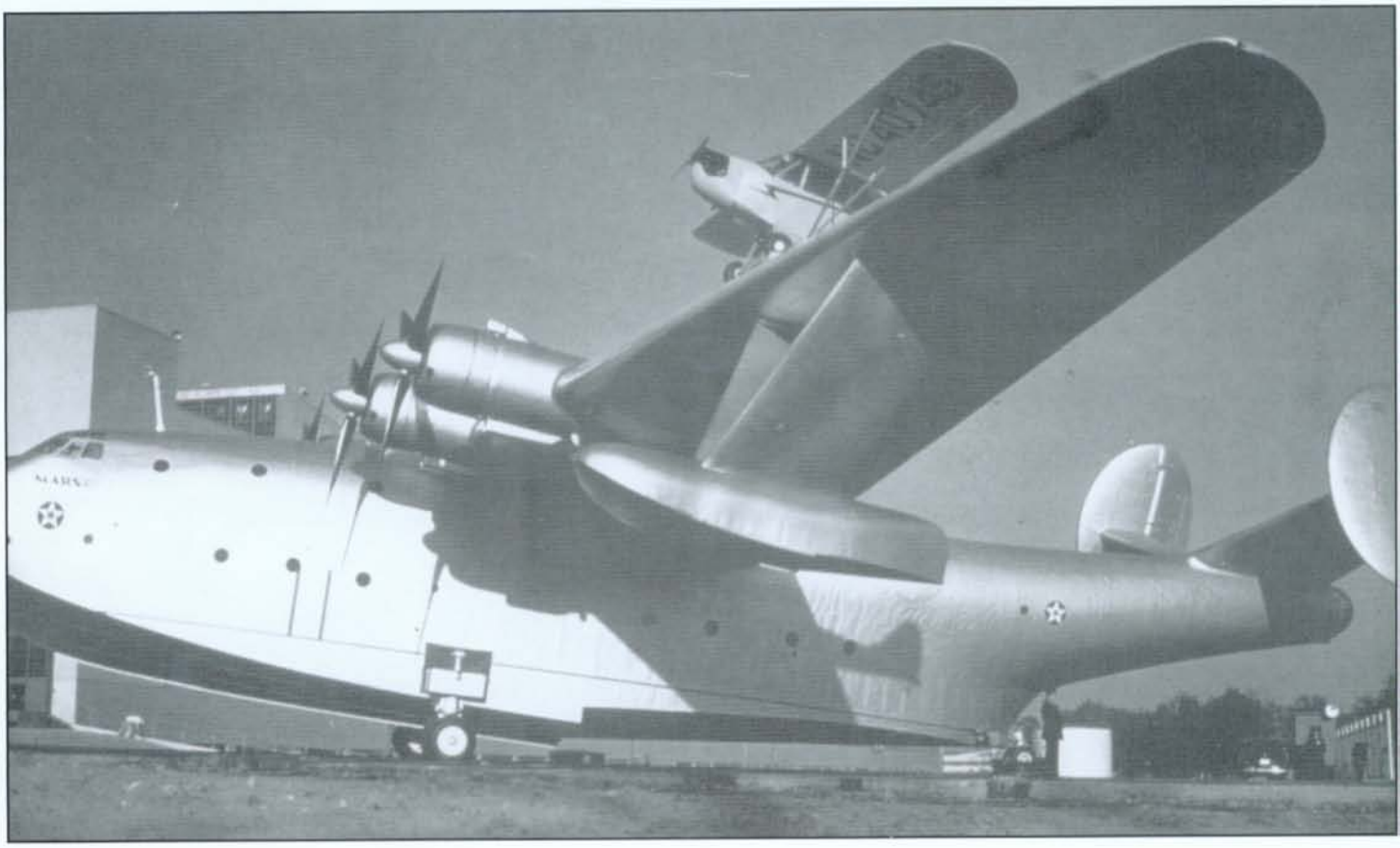
The XPB2M-1 was immediately returned to Martin to convert the patrol bomber into a transport, as four-engine patrol bombers were considered too slow and vulnerable. The wing and fuselage bomb-bays, and all offensive provisions including armor plate, were removed. The decking was reinforced, hatches were added and enlarged, and cargo loading equipment installed. Upon completion, the designation was changed to the XPB2M-1R.

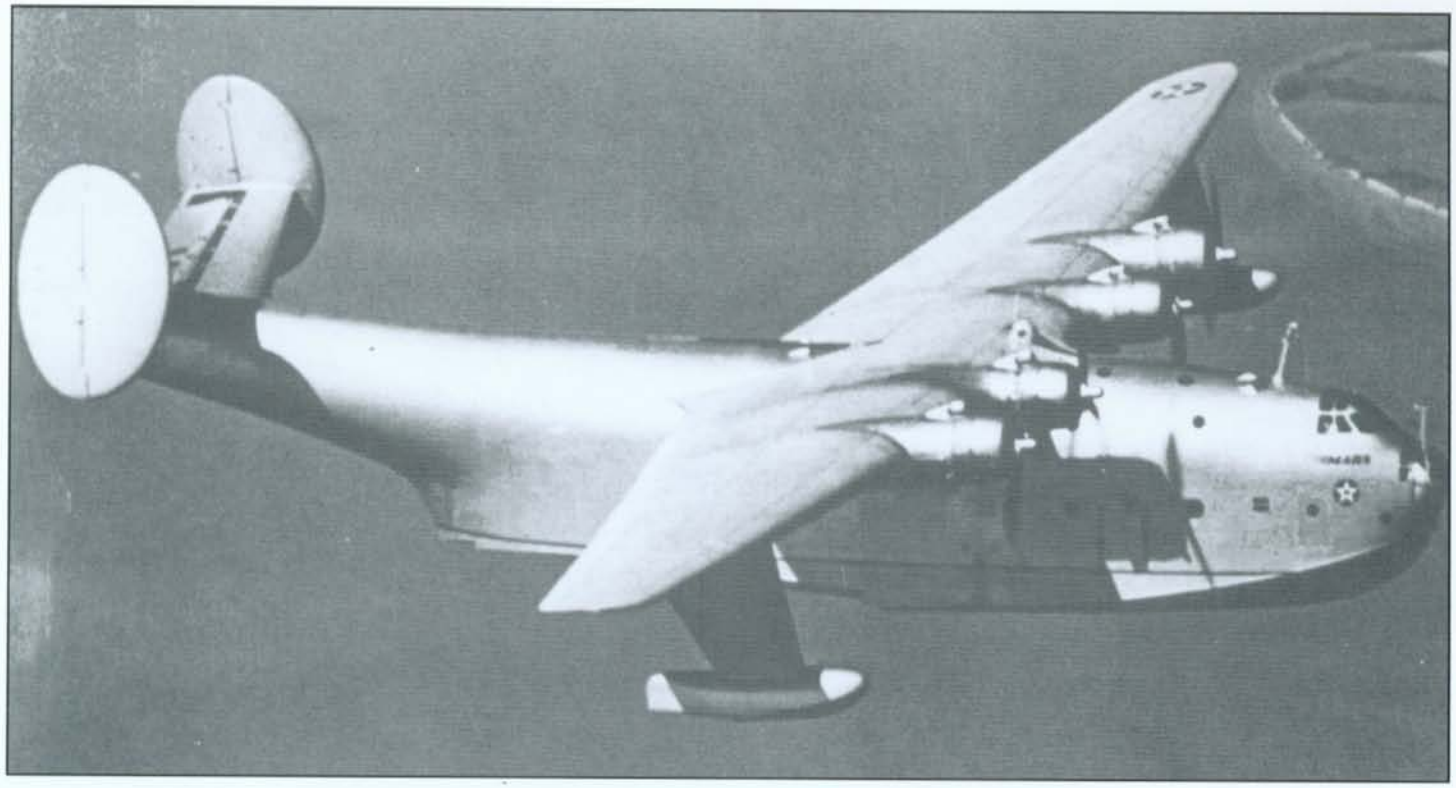
On 8 October 1943, Air Transport Squadron Eight (VR-8) was established at NAS Patuxent River, Maryland. The stated mission was to conduct four-engine seaplane training, which later developed into JRM indoctrination. As an extension of its training role, transport operations

Above, the XPB2M-1 at the start of high speed taxi tests on 26 May 1942. (via S. Nicolau) Below and bottom, the "Mars" picks up speed and raises up onto the step during its high speed run. (National Archives and Martin via Stan Piet)



Above and at left, the XPB2M-1 on 25 June 1942. Note round two-piece waist position doors for retractable turrets, and the completely round tail turret. There also was a retractable top turret and a tunnel gun location in the rear step. (Martin via Stan Piet) Below, early publicity photo of the "Old Lady" with a bright yellow Taylorcraft sitting atop the XPB2M-1's wing. The Taylorcraft carries the civil registration NC 40745 under its wing. (Martin via Stan Piet)

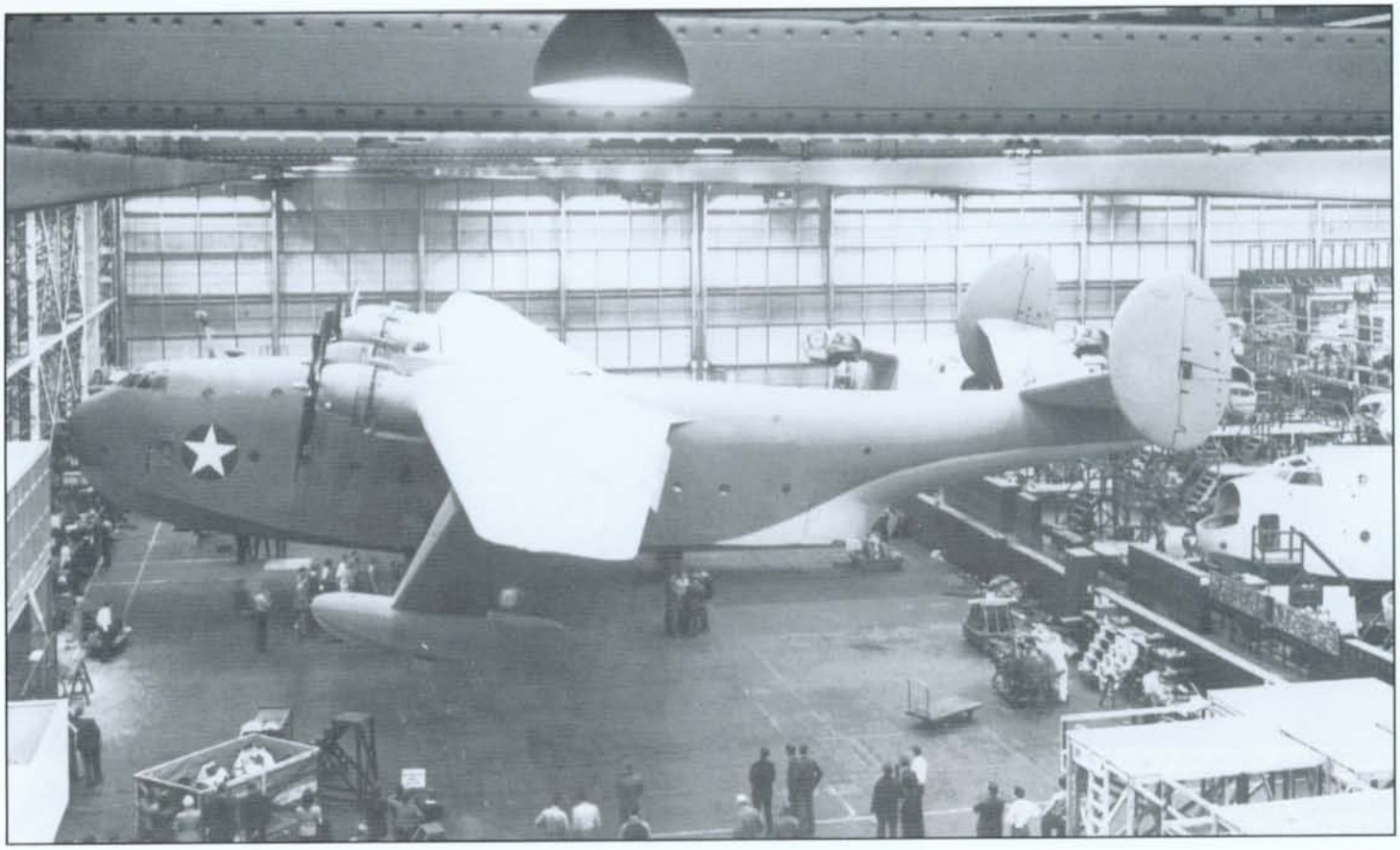




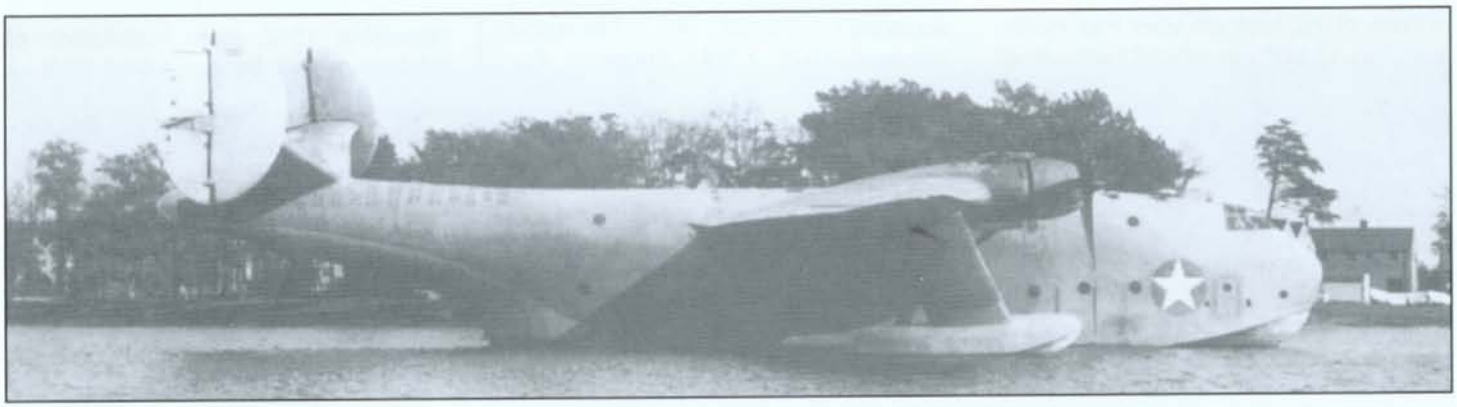
between NAS Patuxent River and NAS Bermuda were carried out as a secondary function. On 27 November 1943, the XPB2M-1R was delivered to VR-8. Three days later, on 30 November, LCDR W. E. Coney, with a crew of 16, took off from Pax River carrying 13,500 pounds of cargo that was delivered to Natal, Brazil, in a nonstop flight of 4,375 miles with a duration of 28 hours and 25 minutes.

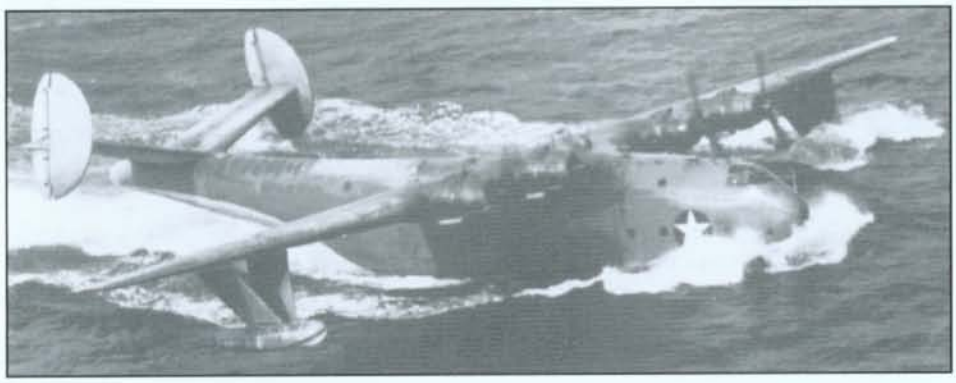
In January 1944, the Old Lady was assigned to the Pacific NATS squadron (Naval Air Transport Service) VR-2 at NAS Alameda, Ca.

Above, the "Old Lady" during a 1942 test flight. (National Archives) Below, the XPB2M-1 in late 1942 with the bow turret removed and faired over. (via S. Nicolau) Bottom, the "Old Lady" commences final overhaul and conversion to the XPB2M-1R transport on 3 December 1942. Note installation of the bow door. (Martin via Stan Piet)



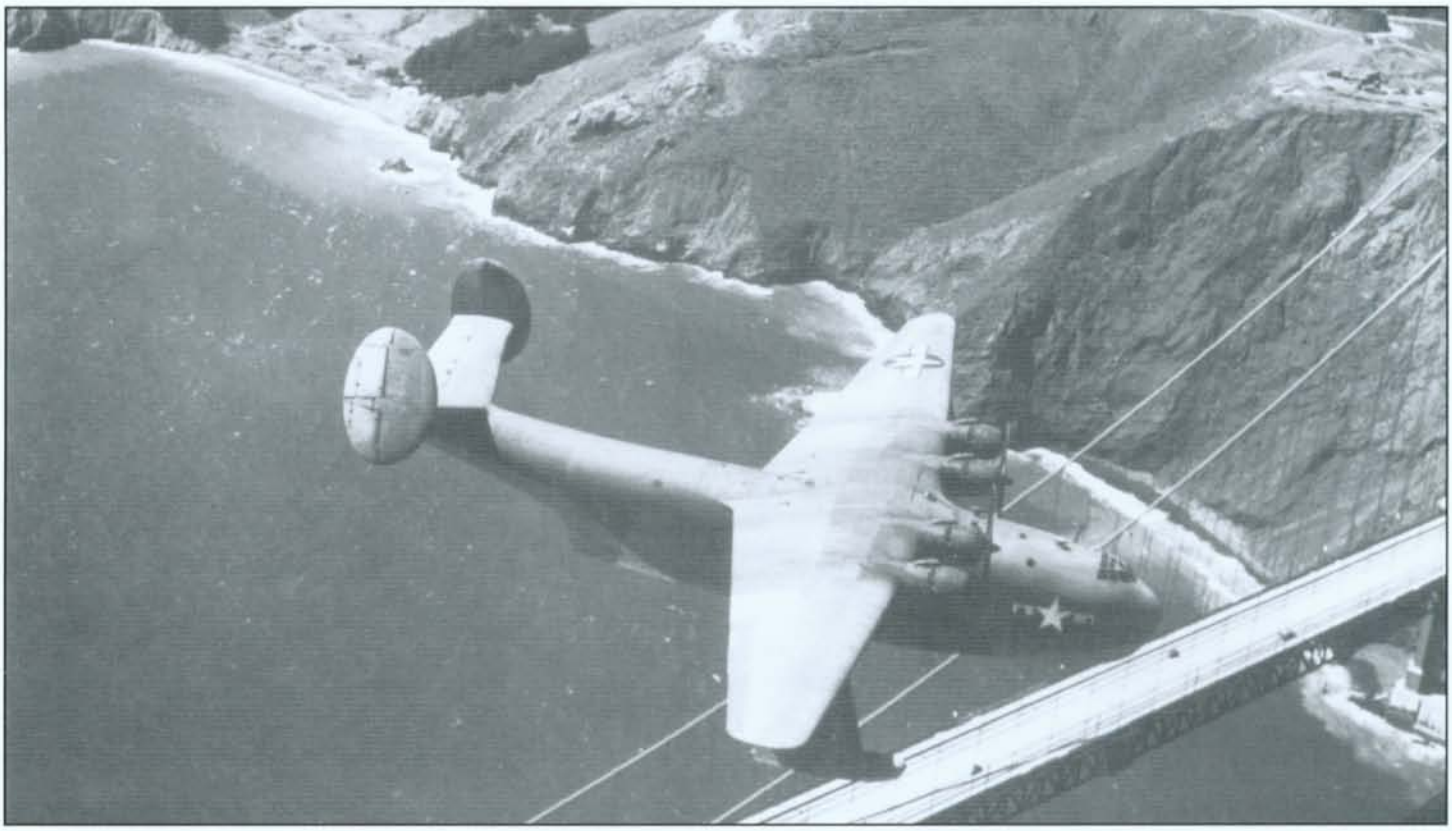
Above, after completing conversion to a transport, the XPB2M-1R is weighed-in at "D" building on 1 March 1943. (Martin via Stan Piet) Below, the XPB2M-1R floats on the Middle River on 1 November 1943. (National Archives)





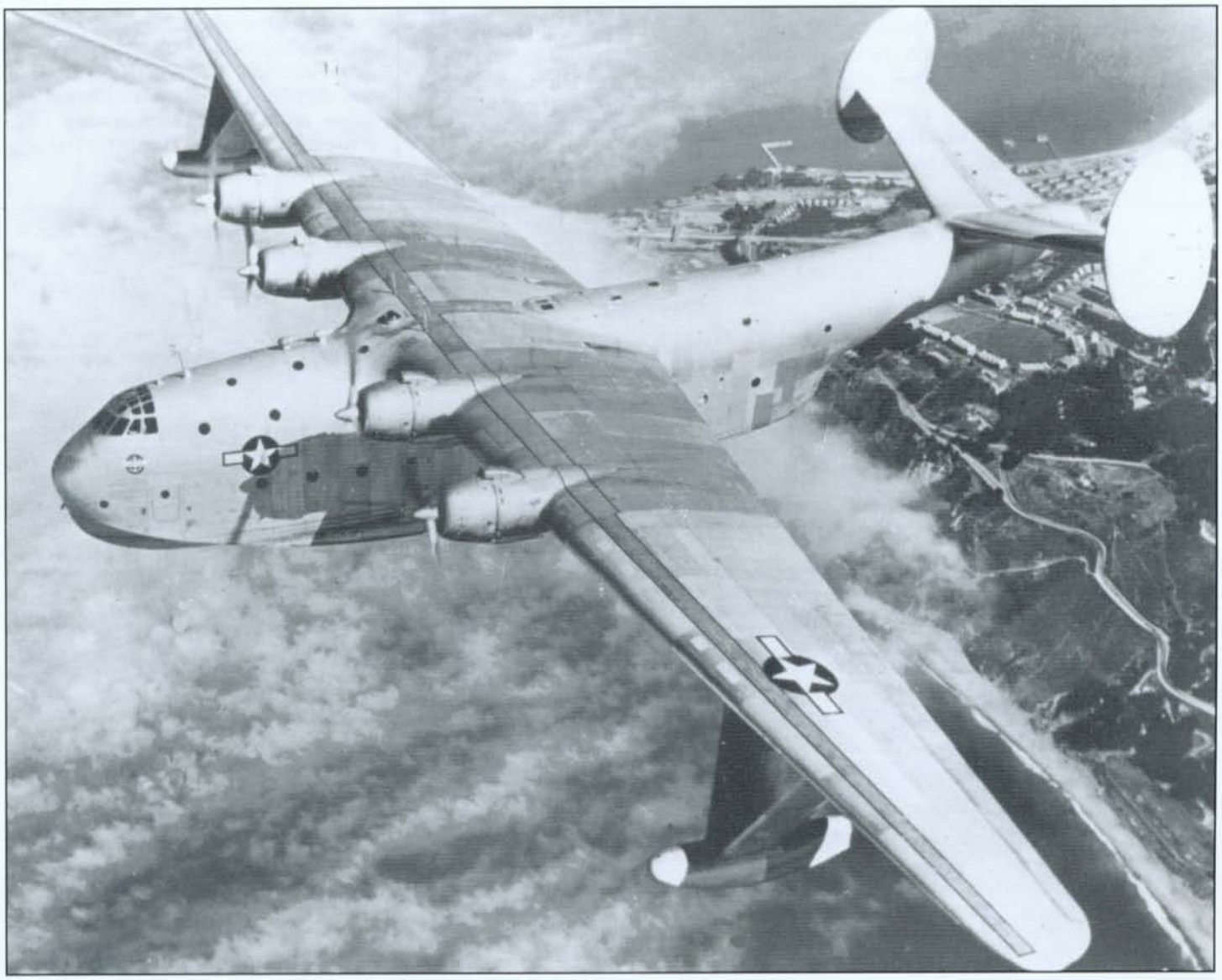
During conversion, the "Old Lady" was painted in camouflage colors of matt blue gray with insignia white undersurfaces. She is seen on a test flight over the Chesapeake Bay, and taxiing on the ocean in October 1943. (via Craig Kaston and S. Nicolau)

Below, the XPB2M-1R moored at Middle River on 6 October 1943. Compare the faired-over nose to that of the gun turret nose shown on page number two. (Martin via Stan Piet)



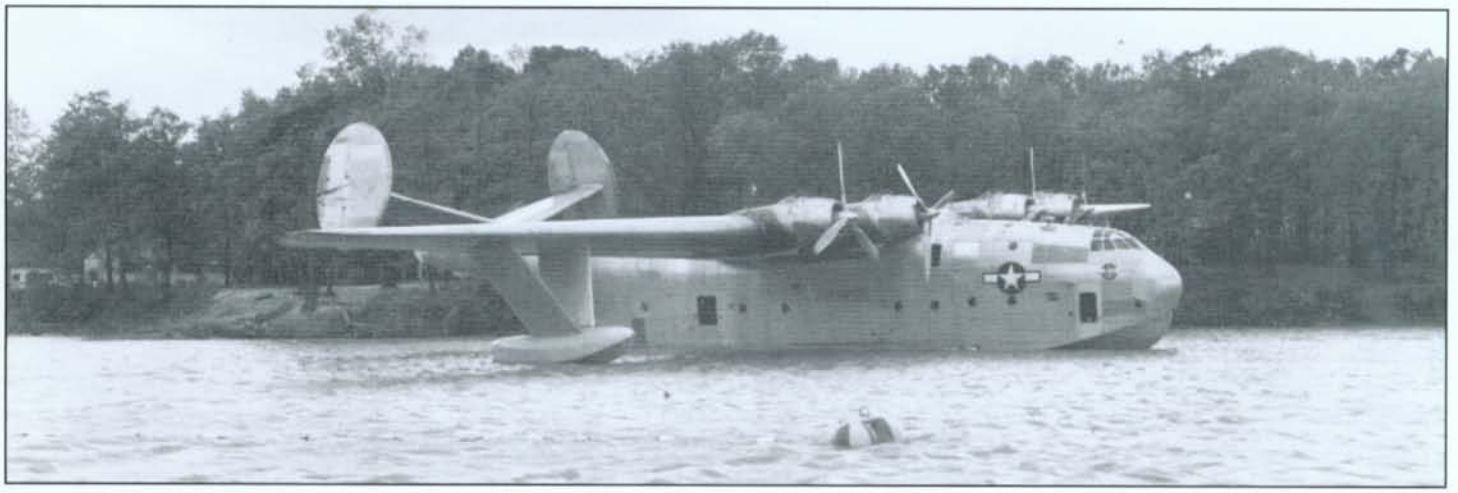
Above, the XPB2M-1R overflys the Golden Gate Bridge in 1944. The matt blue gray paint scheme weathered quickly. (National Archives) Below, the XPB2M-1R descending in a gentle dive. Note the natural cheat line created by mineral deposits from sitting in the water. (via Clay Jansson)

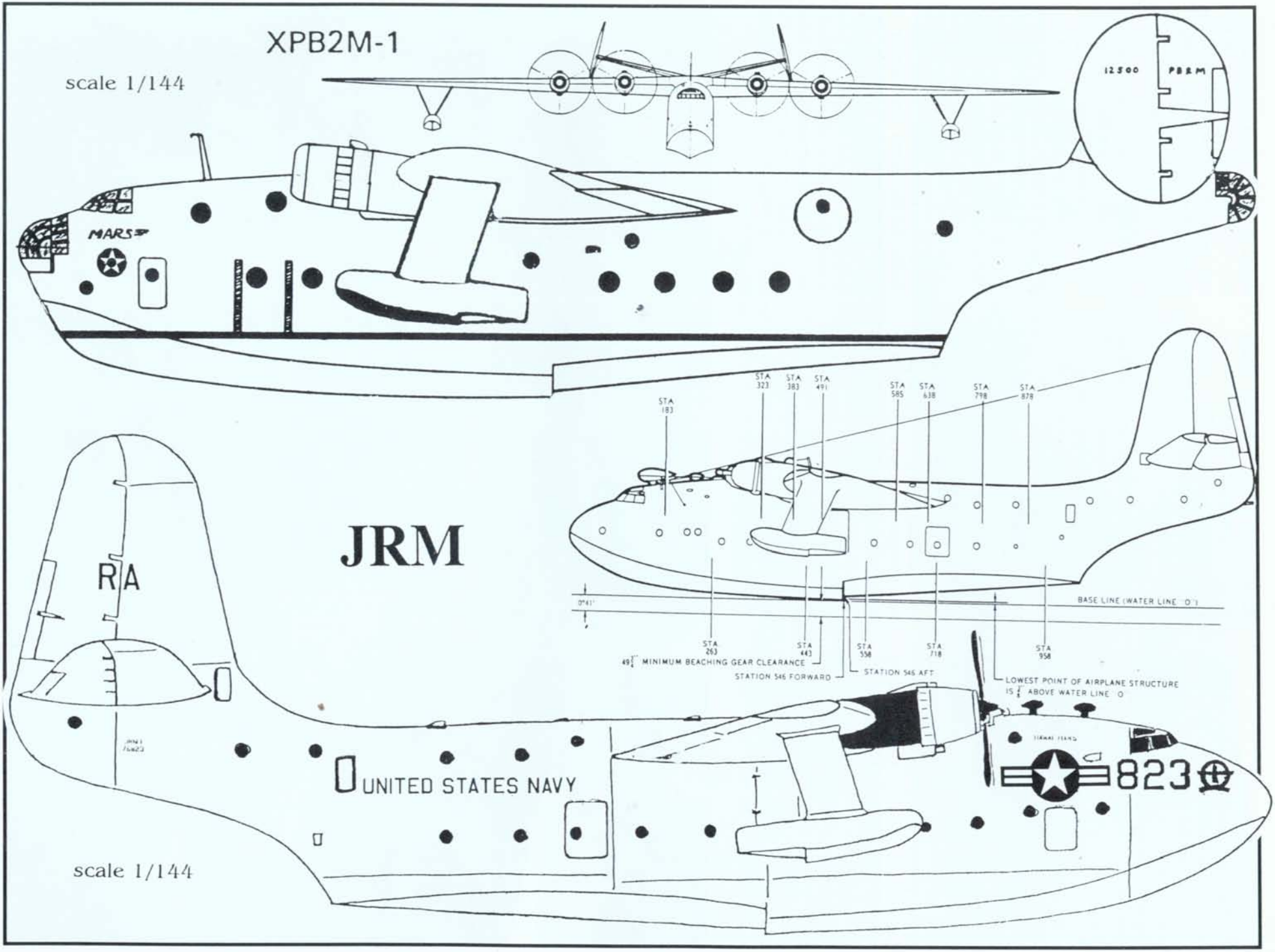
Above, the camouflaged XPB2M-1R is moored outside its floating dock at NAS Alameda in 1944. (via Lionel Paul) Below, the "Old Lady" on 17 October 1944 while over San Francisco . The camouflage has been removed and she is once again natural metal overall. Note the Naval Air Transport Service insignia on the nose. (via S. Nicolau)



While assigned to VR-2, the XPB2M-1R completed 78 round trips between San Francisco Bay and Honolulu before being retired in March 1945. Capable of carrying 150 men, she transported over 3,000,000 pounds of supplies and personnel, which included 120 cargo-tons of whole blood in a single month during the fight for Iwo Jima. At the time, the 4,700 mile round trip Hawaii flight was the longest scheduled route in the world. On its first flight, the Mars completed the flight in 27 hours and 26 minutes, while delivering a 20,500 pound cargo load.

Above, visitors inspect the "Old Lady" at its floating dock at NAS Alameda. Naval Air Transport Service is painted on the side. Below, XPB2M-1R lands at Pax River on 4-29-45. (N.A.) Bottom, the XPB2M-1R retires to Dark Head Cove on 5-1-45, where it was overhauled and used by Martin for training. (Martin via Stan Piet)




XPB2M-1
scale 1/144
12500
PB2M
MARS
JRM
R/A
UNITED STATES NAVY
823
STA 183
STA 323
STA 383
STA 491
STA 585
STA 638
STA 798
STA 878
STA 263
STA 443
STA 558
STA 718
STA 958
BASE LINE (WATER LINE "0")
49½" MINIMUM BEACHING GEAR CLEARANCE
STATION 546 FORWARD
STATION 546 AFT
LOWEST POINT OF AIRPLANE STRUCTURE IS 6" ABOVE WATER LINE "0"
scale 1/144

Based on the success of the XPB2M-1R (BuNo 1520), the Navy placed an order for twenty (BuNos 76819-76838) improved versions of the Mars designated the JRM-1. The contract was issued in January 1945, but was reduced to six aircraft when the war ended. The six JRM-1s were to be specifically built for Naval Air Transport Squadron Two and its Alameda-to-Honolulu route.

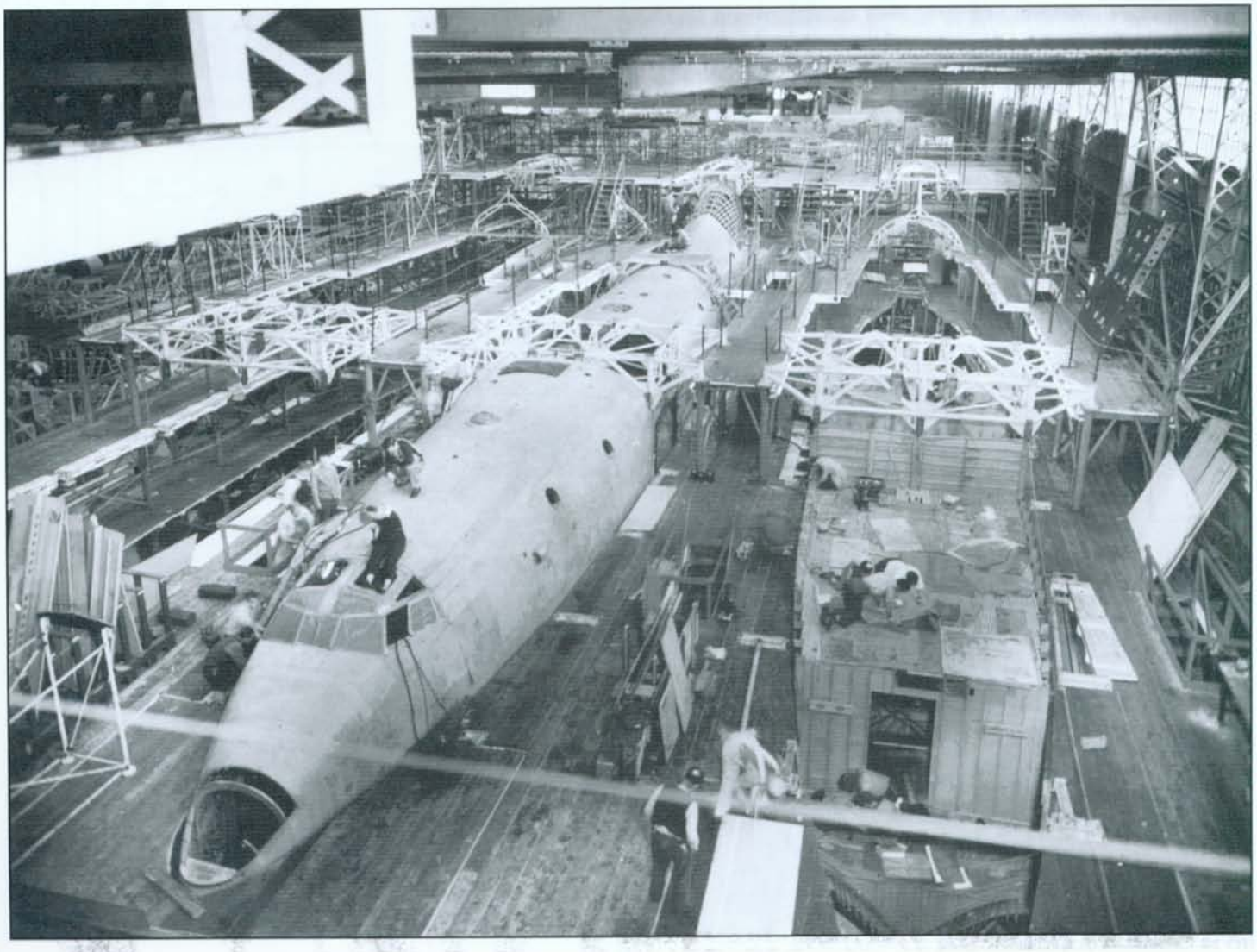
The first JRM-1 (BuNo 76819), the "Hawaii Mars", was completed in late June 1945 and flown several times before being christened and launched on 27 July 1945. Before testing was completed the Hawaii Mars was lost on 5 August 1945. The leading edge of the vertical stabilizer failed and the aircraft was lost when it attempted to land in Chesapeake Bay (see page 18). The remains of the first JRM-1 were recovered and returned to Martin's Middle River Plant for analysis. Because of the loss of Hawaii Mars, JRM-1 BuNo 76823 was renamed Hawaii Mars upon its completion.

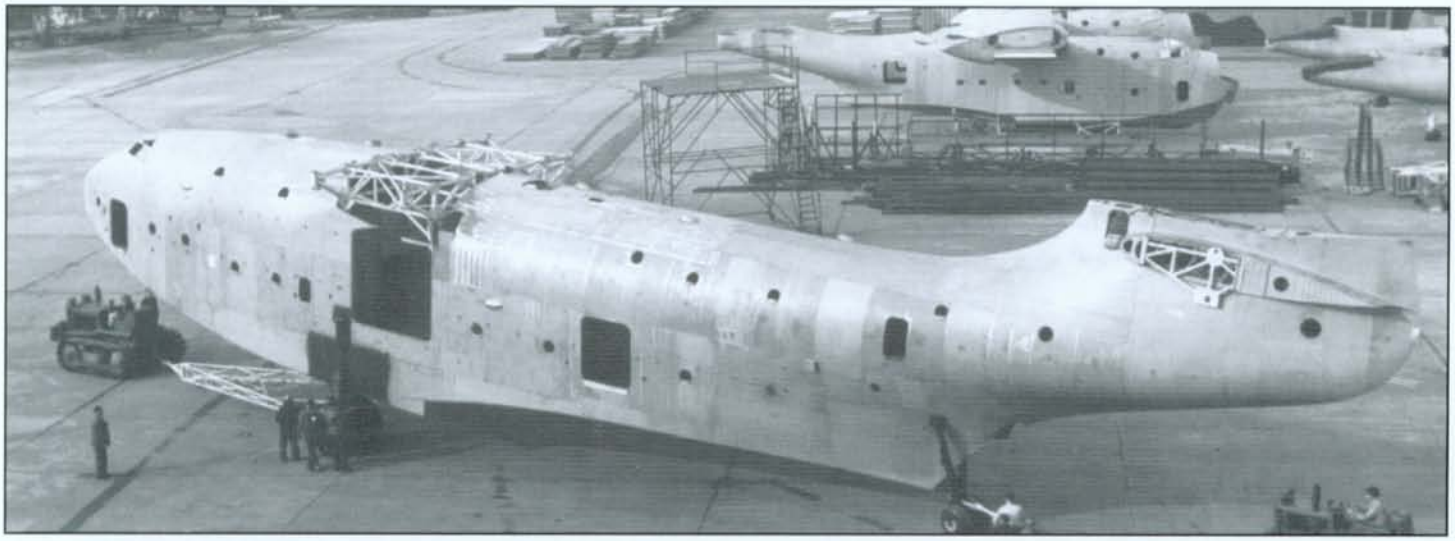
Four more JRM-1s and one JRM-2 were completed after the loss of 76819. These were christened as follows: 76820, Philippine Mars; 76821, Marianas Mars; 76822, Marshall Mars; 76823, Hawaii Mars; and 76824, Caroline Mars.

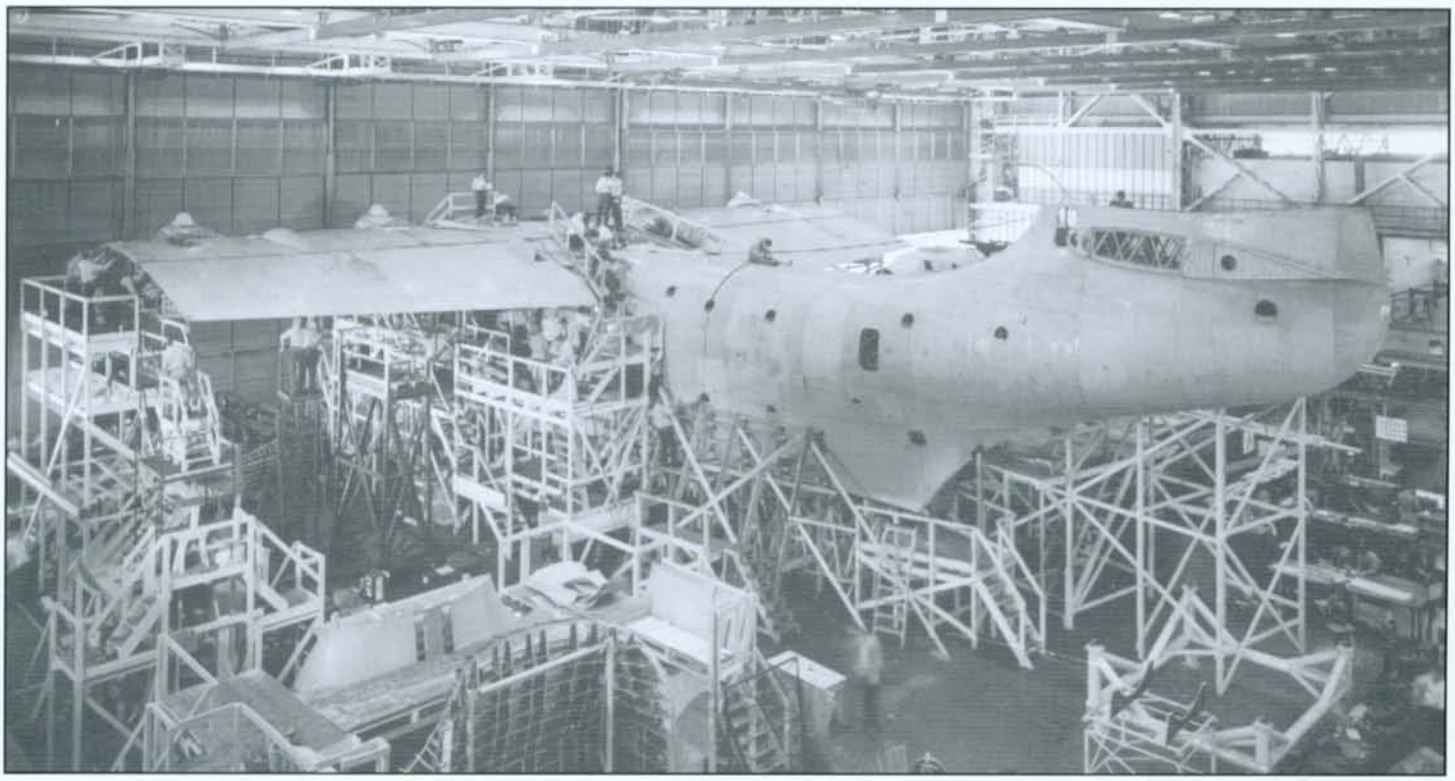
The redesigned JRM-1 retained the basic wing and float structure found on the XPB2M-1R, except for the addition of improved R-3350-8 engines of 2,400 hp. However, the fuselage and hull were heavily modified to improve both performance and load carrying capability. The most notable physical change was the deletion of the twin tails. The new single vertical fin increased the Mar's height to 44 ft. 7in. Less noticeable was the 4-foot aft extension of the step, which benefitted both the water handling and cargo carrying ability of the JRM-1.

The JRM-1 was internally a very different aircraft than the XPB2M-1R. Huge outward-opening cargo doors were installed on each side of the hull beneath the wings. The 99 inch wide 92 inch high doors were serviced by 5,000 lb. electric hoists and overhead tracts. Two new rear side doors were

At right top and middle, the first JRM-1 (BuNo 76819) leaves the ways in B building for its trip to D building and the mating of the wings to the fuselage on 2-25-45. At right bottom, the wing being joined to the Mars on 3-19-45. Below, JRM-1s number two and three under construction in ways one and two in building B on 3-26-45. (Martin via Stan Piet)



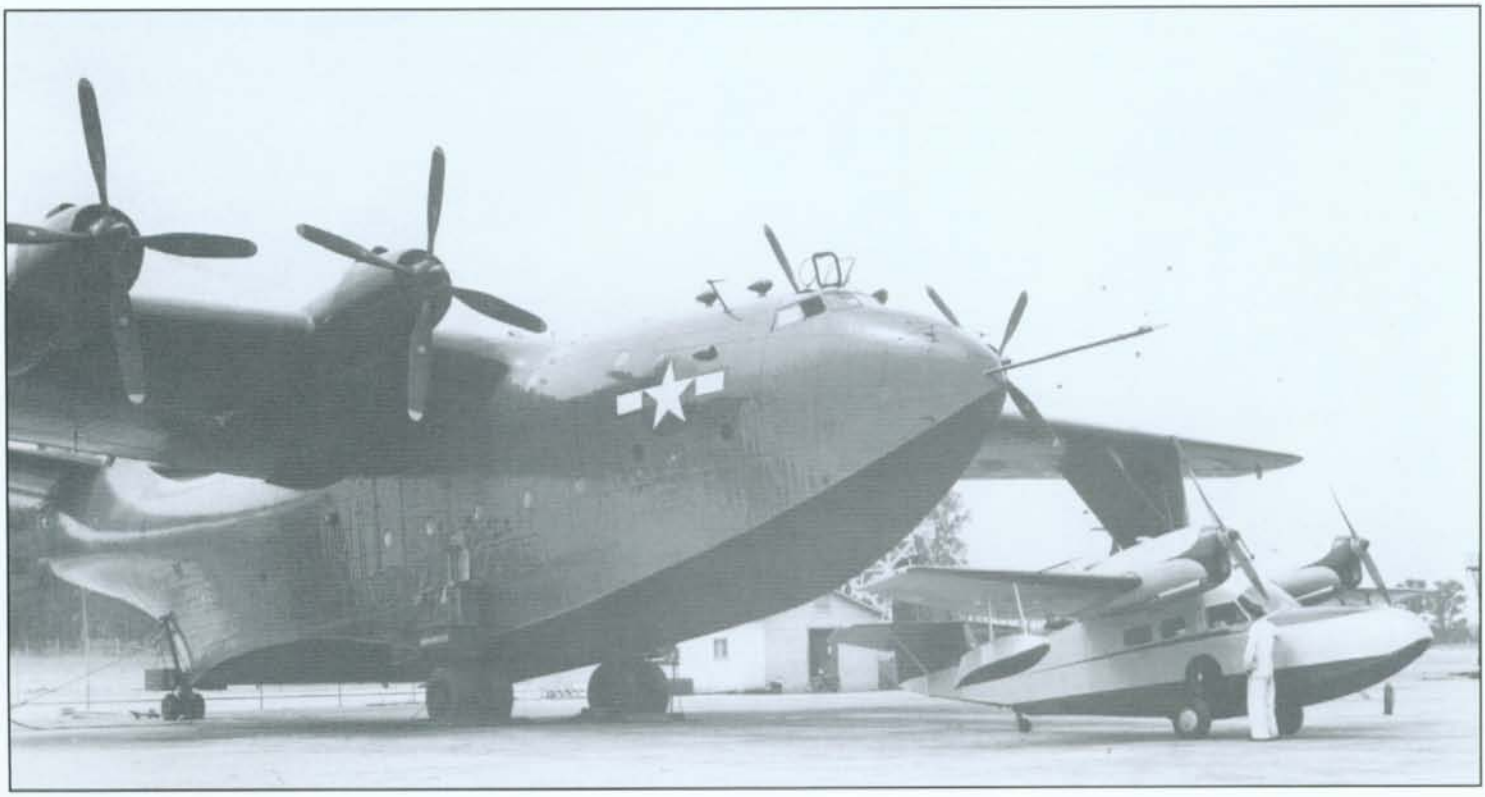


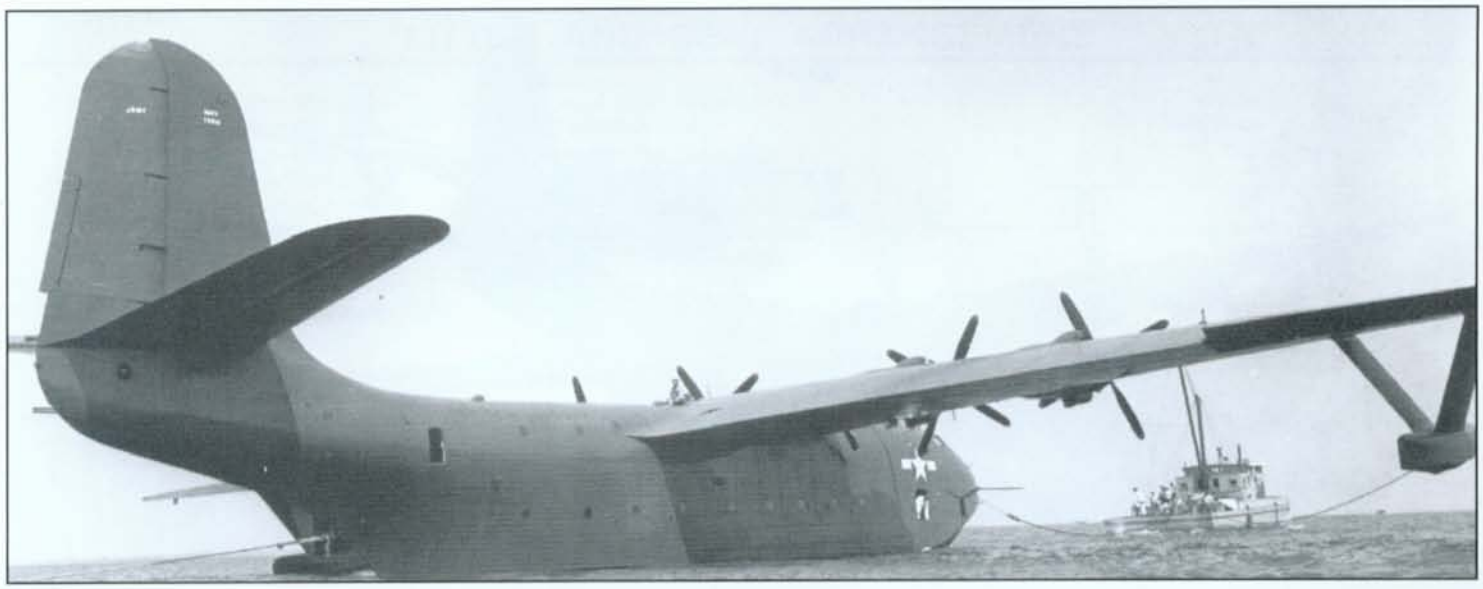


Above, the first JRM-1 on 6-16-45 prior to installation of the vertical fin and propellers. (Martin via Stan Piet)

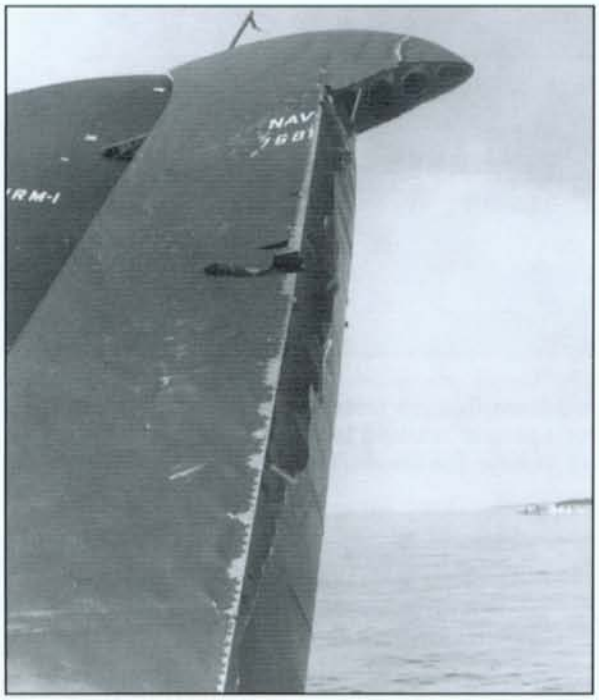
also added, each measuring 50 inches in width and 62 inches in height. The interior area was opened up for better freight handling by removing many of the bulkheads and replacing them with frames. Freight flooring was installed on two levels and a stairway led from the rear of the freight deck to the upper deck. The stairs led through a trap door measuring 50 inches by 24 inches, big enough to easily pass up low-density loads to the upper deck. The upper deck had washrooms installed at the extreme aft end. On the upper deck forward of the stairs was a APU compartment, two crew sleeping compartments equipped with four bunks each and finally the flight deck. Steps led from the flightdeck to the bow anchor compartment and then down to the galley and flightdeck entrance.

Below, publicity photo of the first JRM-1 along side a Grumman "Widgen" in July 1945. (Martin via Stan Piet)





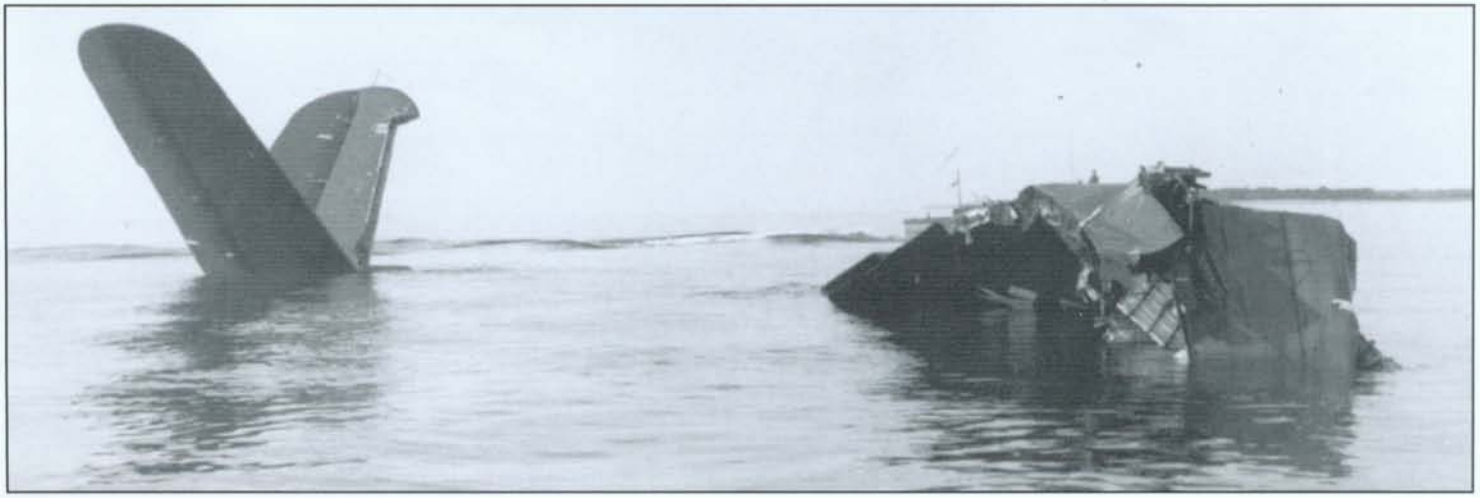
Top, the first JRM-1 (76819), which was the first "Hawaii Mars", undergoes seaworthiness tests on 7-10-45 prior to its first flight. Above, with NAVAL AIR TRANSPORT SERVICE added to the rear fuselage and HAWAII MARS and the NATS insignia added to the nose, 76819 floats on the Middle River after launching on 7-27-45. Below, the Hawaii Mars is launched on 7-27-45. (Martin via Stan Piet)



LOSS OF HAWAII NUMBER ONE BUNO 76819

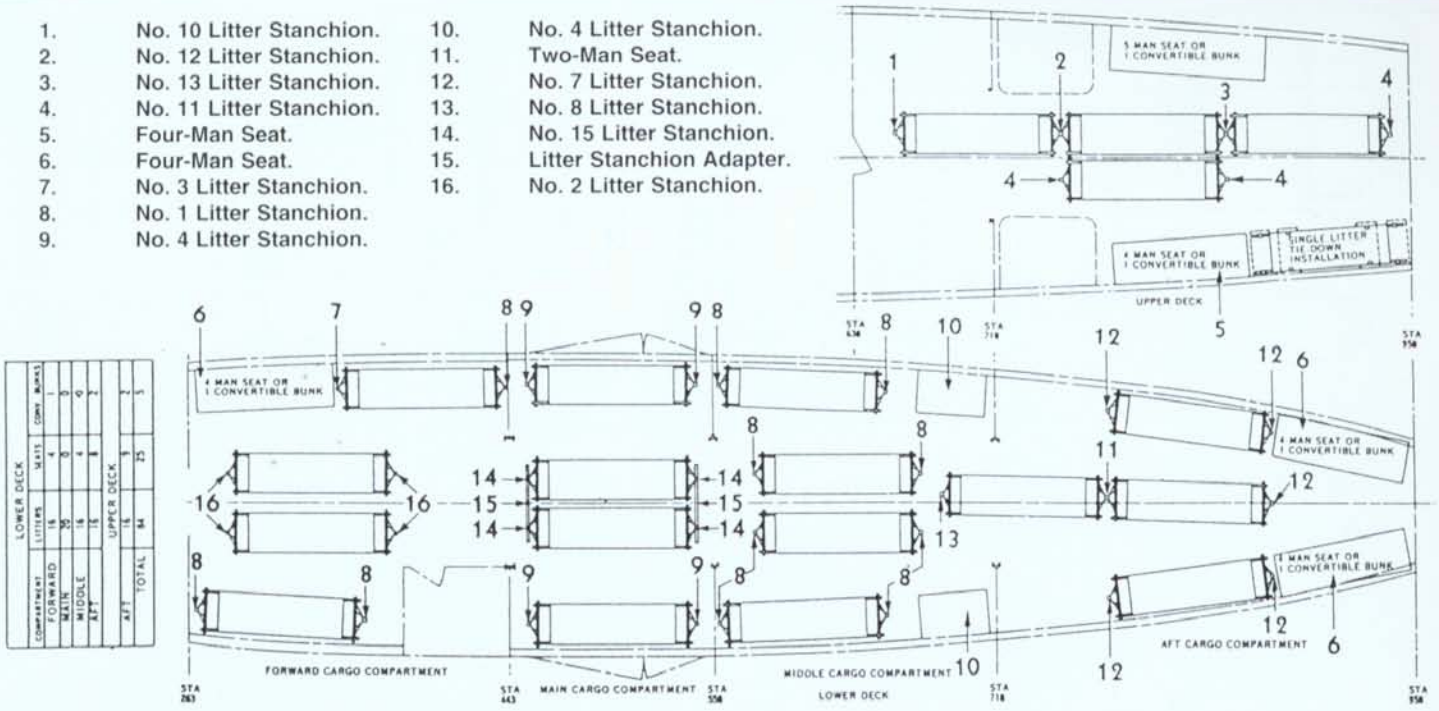
Above, the first Hawaii Mars on a test flight with the "Old Lady" and the company SNJ in the background in July 1945 over Balto City. Shortly after this flight was made the Hawaii Mars was lost in Chesapeake Bay on 5 August 1945. At left, closeup of the failed leading edge of the vertical stabilizer, which caused the loss of the first JRM-1, Hawaii Mars 76819. Below, the first JRM-1 was a total loss. All the JRMs were painted in overall glossy sea blue. (Martin via Stan Piet)

With minor configuration changes the JRM-1 could be used in a variety of transportation roles. As a troope transport the JRM could accommodate 133 fully equipped combat troopes on canvas, bench-type seats with web backrests and safety belts. As a medevac aircraft, 84 litters and 25 seats were installed. In the general transport role, passenger seats were installed forward and aft while baggage and mail were stored near the hull's center section. As a cargo plane, virtually all areas of the hull were used for storage. Maximum payload in the cargo role was 35,000 pounds.



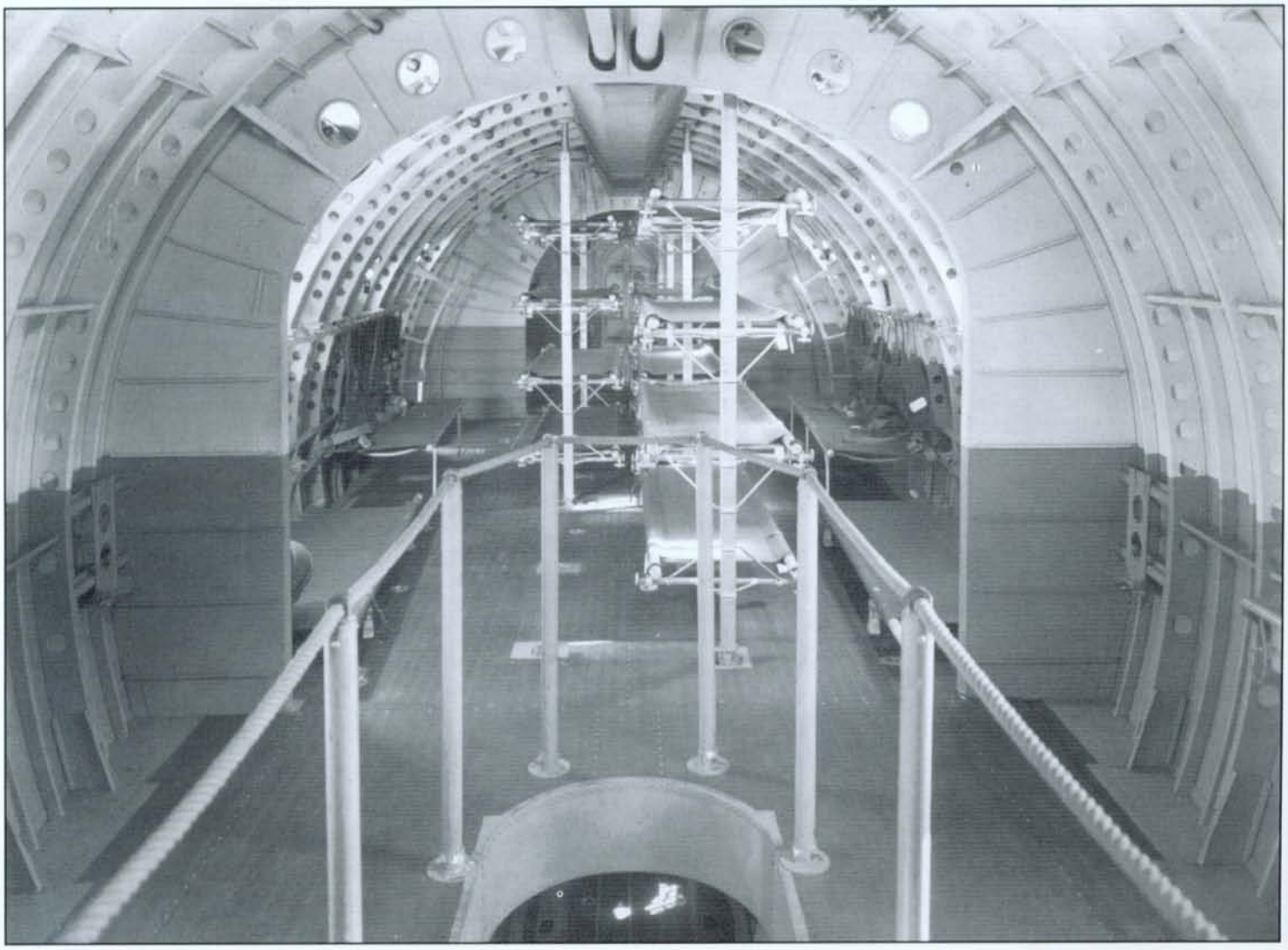
LITTER AND SEAT ARRANGEMENT

1. No. 10 Litter Stanchion.
2. No. 12 Litter Stanchion.
3. No. 13 Litter Stanchion.
4. No. 11 Litter Stanchion.
5. Four-Man Seat.
6. Four-Man Seat.
7. No. 3 Litter Stanchion.
8. No. 1 Litter Stanchion.
9. No. 4 Litter Stanchion.
10. No. 4 Litter Stanchion.
11. Two-Man Seat.
12. No. 7 Litter Stanchion.
13. No. 8 Litter Stanchion.
14. No. 15 Litter Stanchion.
15. Litter Stanchion Adapter.
16. No. 2 Litter Stanchion.



LOWER DECK				UPPER DECK		
COMPARTMENT	LITTERS	WAIST	CONV. BUNKS	LITTERS	WAIST	CONV. BUNKS
FORWARD	16	4	1	16	5	2
MAIN	16	5	3			
MIDDLE	16	4	0			
AFT	16	8	2			
AFT				16	5	2
TOTAL	64	25	6	32	10	4

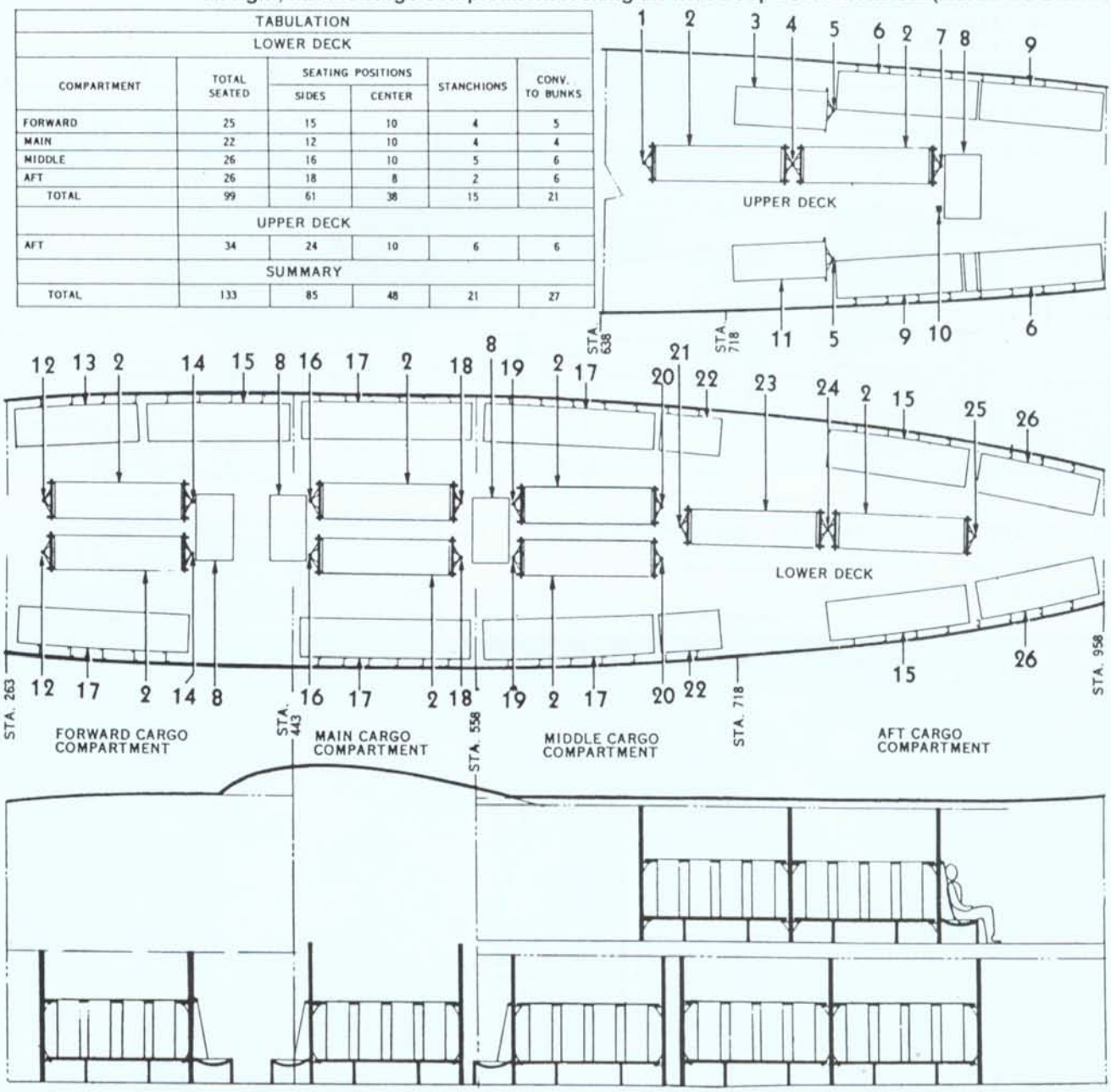
Below, upper deck looking forward from the aft stairway with litters installed. (Martin)



JRM TROOP SEAT ARRANGEMENT

At right, middle cargo compartment looking aft with troop seats installed. (Martin via Stan Piet)

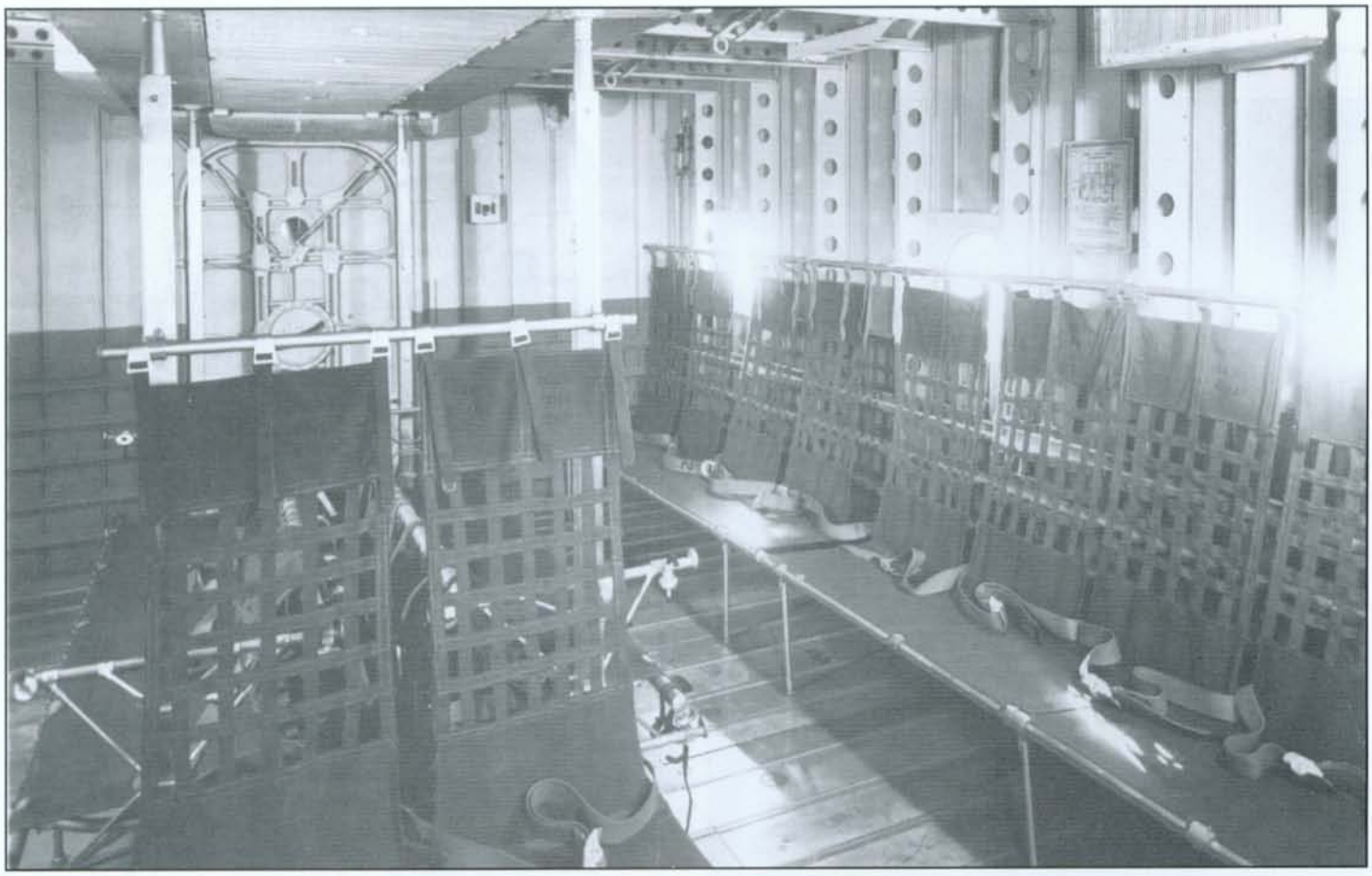
TABULATION					
LOWER DECK					
COMPARTMENT	TOTAL SEATED	SEATING POSITIONS		STANCHIONS	CONV. TO BUNKS
		SIDES	CENTER		
FORWARD	25	15	10	4	5
MAIN	22	12	10	4	4
MIDDLE	26	16	10	5	6
AFT	26	18	8	2	6
TOTAL	99	61	38	15	21
	UPPER DECK				
AFT	34	24	10	6	6
	SUMMARY				
TOTAL	133	85	48	21	27

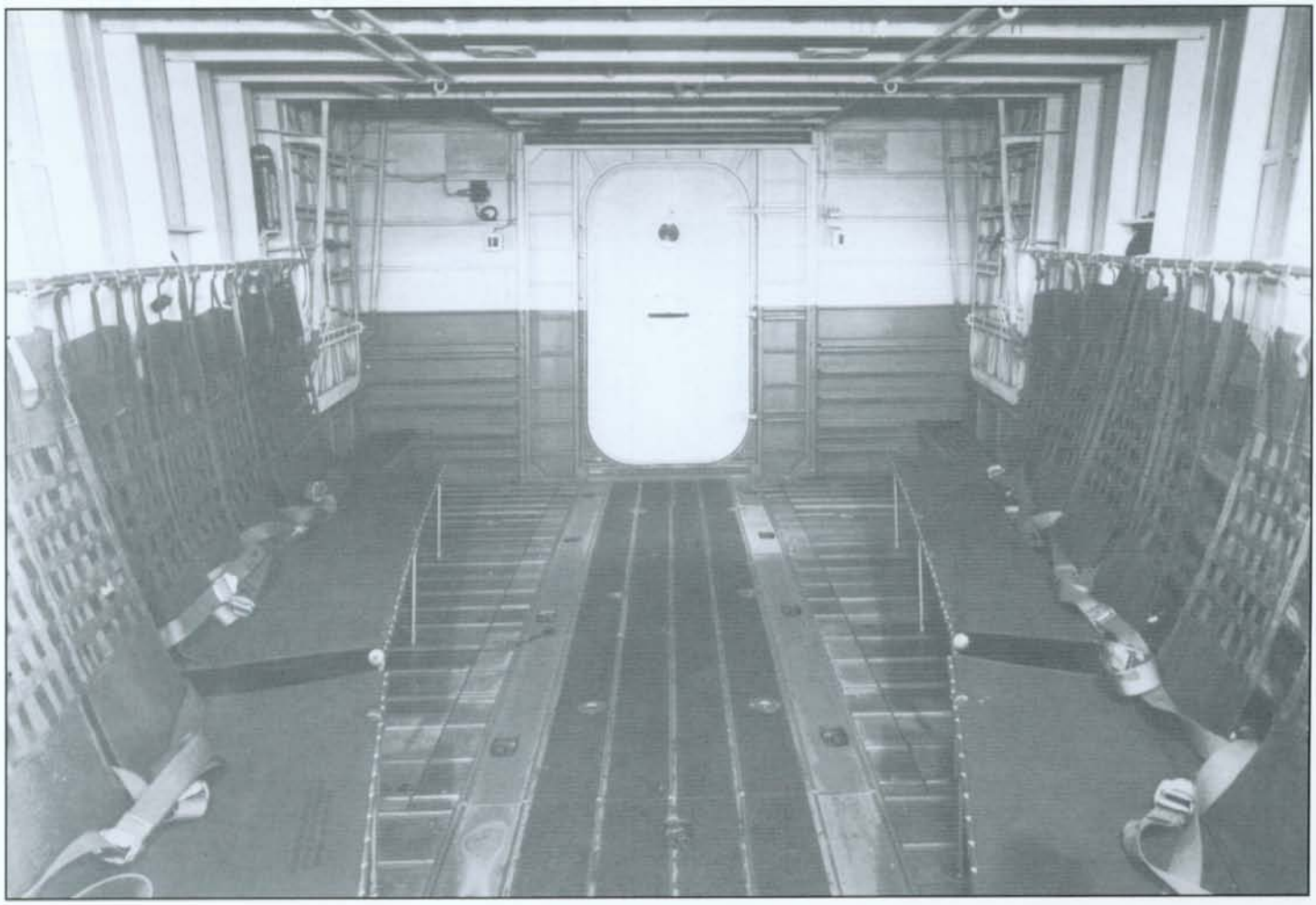


1 Stanchion AC200727, "10" *
2 Four-Man Seat or One Convertible Bunk AC200403
3 Three-Man Seat AC200786 RH
4 Stanchion AC200726, "12" *
5 Stanchion AC200625, "14" *
6 Five-Man Seat or One Convertible Bunk AC200568
7 Stanchion AC200728, "13" *
8 Two-Man Jump Seat AC200565
9 Four-Man Seat or One Convertible Bunk AC200567
10 Stanchion AC200626, "11" *
11 Three-Man Seat AC200785 LH
12 Stanchion AC200781, "2" *
13 Four-Man Seat or One Convertible Bunk AC200811
14 Stanchion AC200778, "2" *
15 Five-Man Seat or One Convertible Bunk AC200729
16 Stanchion AC200722, "17" *
17 Six-Man Seat or One Convertible Bunk AC200405
18 Stanchion AC200721, "16" *
19 Stanchion AC200720, "1" *
20 Stanchion AC200719, "1" *
21 Stanchion AC200723, "5" *
22 Two-Man Seat AC200812, combined with adjacent six-man seat for two bunks
23 Four-Man Seat or One Convertible Bunk AC200402, Special, or One Convertible Bunk, facing left
24 Stanchion AC200725, "7" *
25 Stanchion AC200724, "8" *
26 Four-Man Seat or One Convertible Bunk AC200811

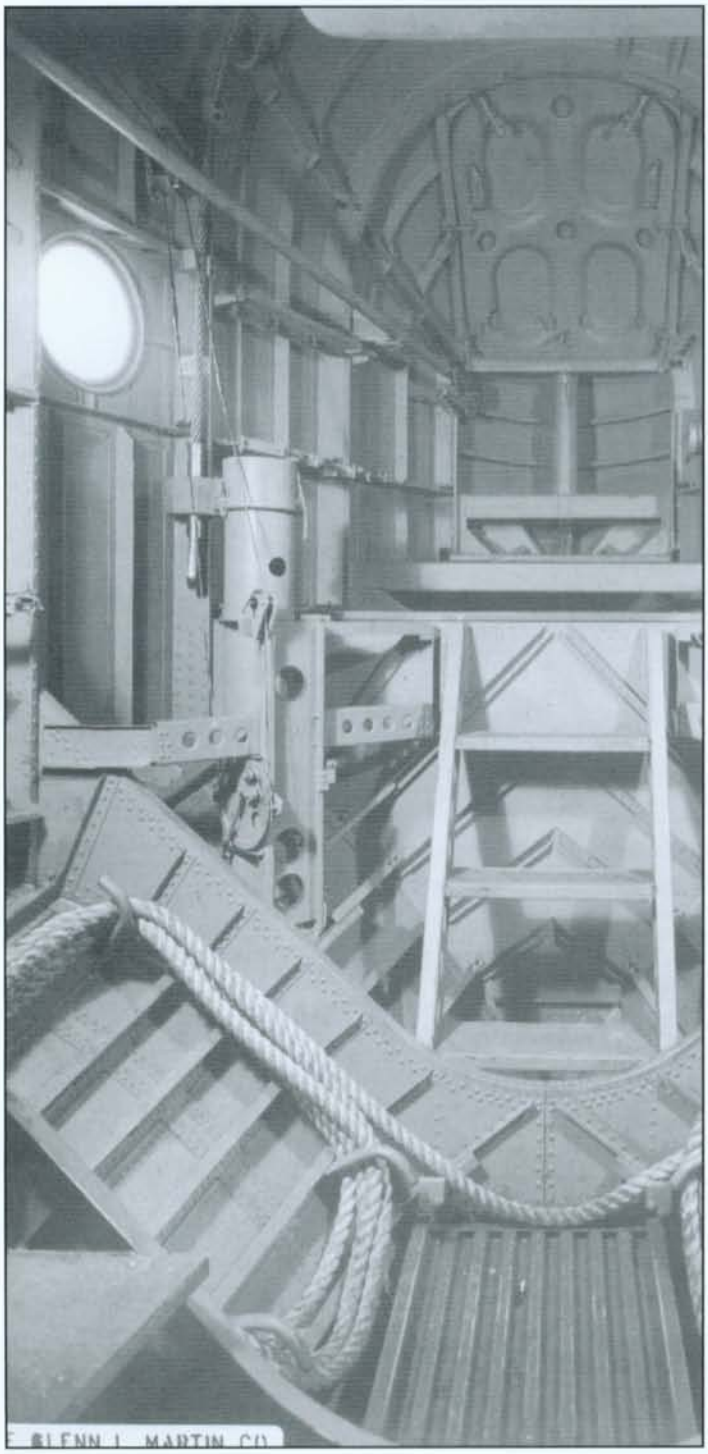
*This decalcomania number is on the stanchion and on the overhead support bracket for the stanchion.

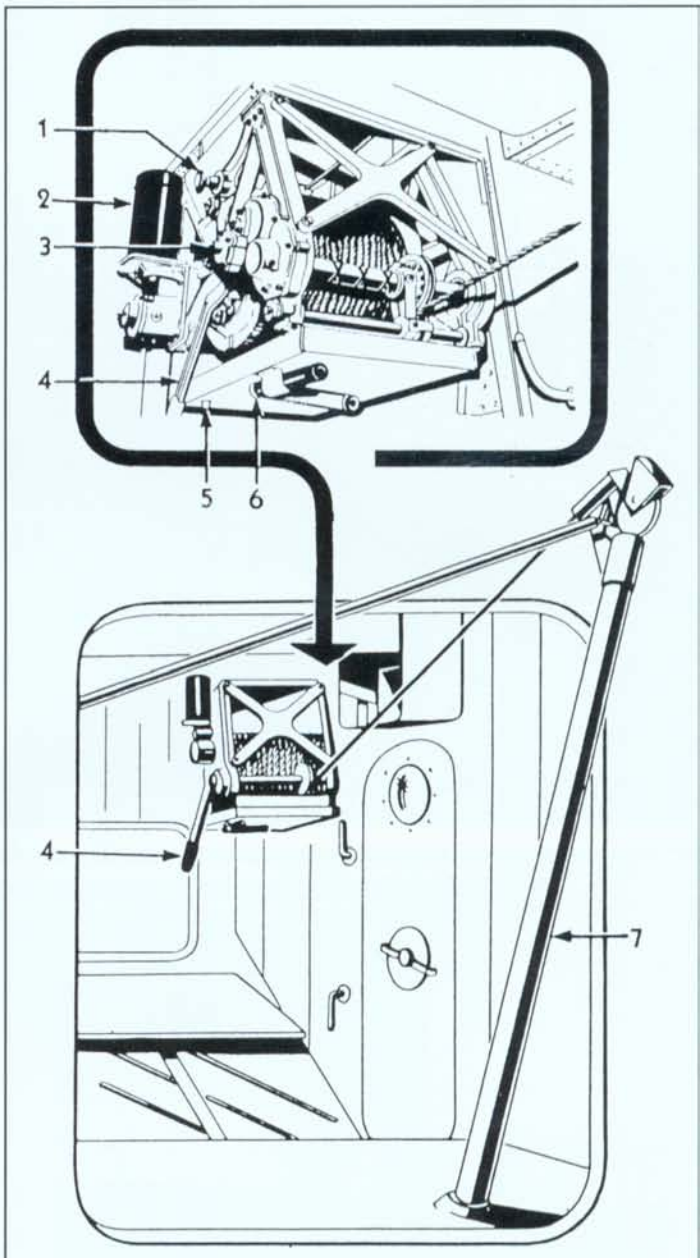
At right, aft cargo compartment looking forward with troop seats installed along the walls. (via SDAM)





BOW COMPARTMENT AND ANCHOR WINCH ARRANGEMENT





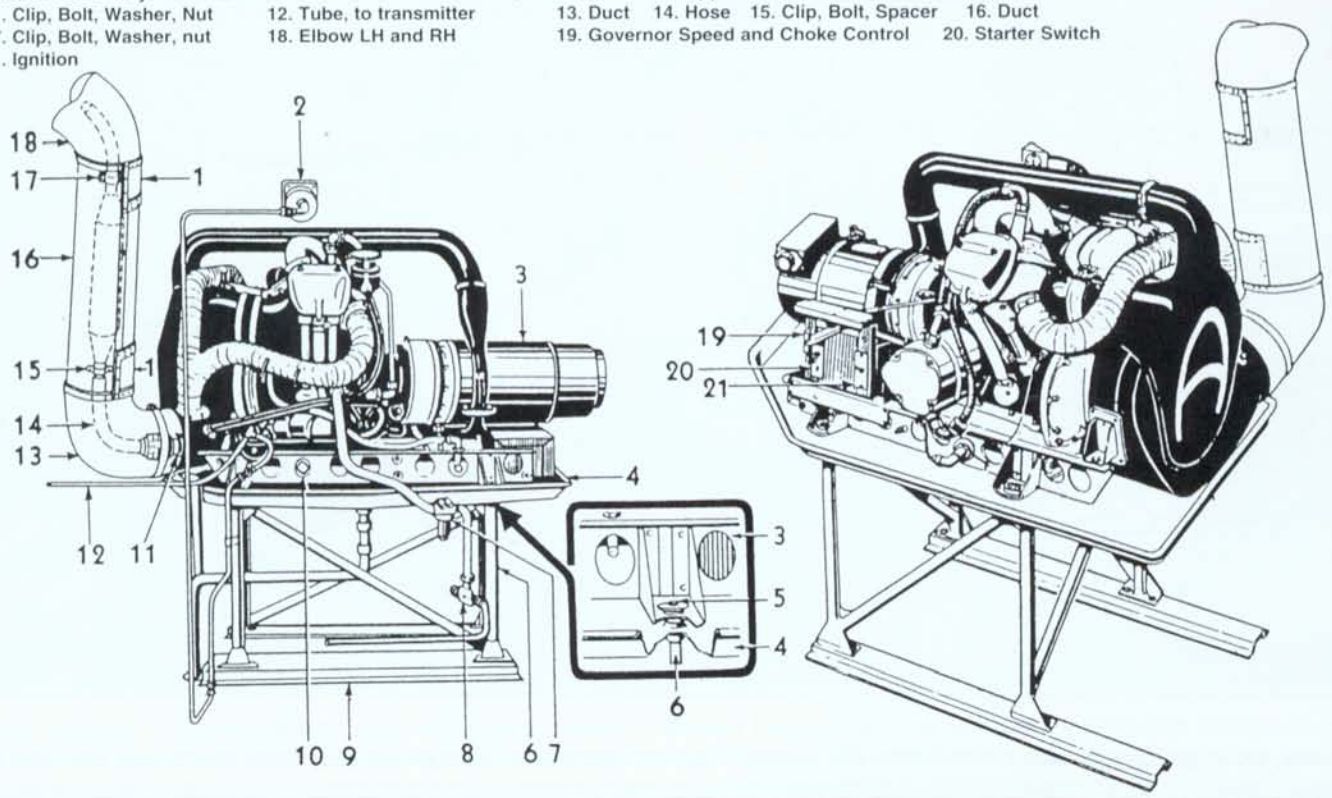
1 Lock Panel
2 Drive Motor
3 Emergency Hand Crank Shaft
4 Brake
5 Drain Plug
6 Emergency Hand Crank, stowed
7 Anchor Boom

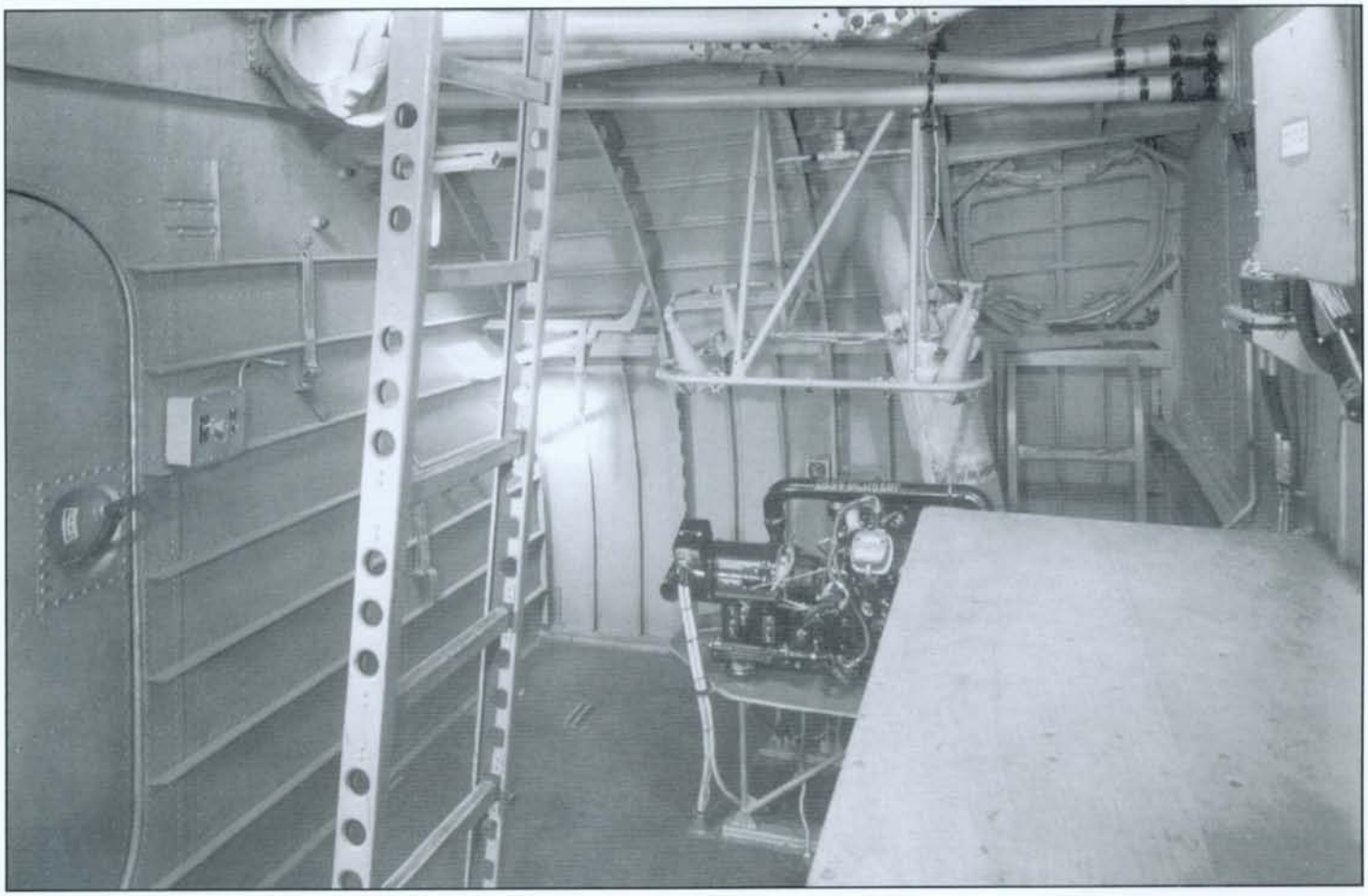
Above, bow compartment forward of the bow doors looking forward. The bow mooring hatch is all the way forward with steps leading up to the platform beneath it. The towing pendant of 3/4-inch flexible steel cable is looped around the top of the cabin forward of the porthole. The mooring ropes are looped in the lower well between the hull frames. (Martin via Craig Kaston) Above right, illustration of the anchor winch and the installation of the anchor boom in the open anchor hatch on the left side of the fuselage. The anchor boom can only be installed when the door is open as it extends out over the water where it drops the 100 pound stainless steel Danforth anchor.

At right, the auxiliary power unit compartment on the upper deck aft of the flightdeck. The oval fuselage side hatch is located above the APU with a ladder leading up to it. The door at left leads to the flightdeck and the ladder leads to the upper fuselage hatch which leads onto the wings. Note the fire extinguisher rig with four nozzles which is installed above the APU. The APU unit produced 28.5 volts D. C. and 175 amps. (Martin via Crag Kaston)

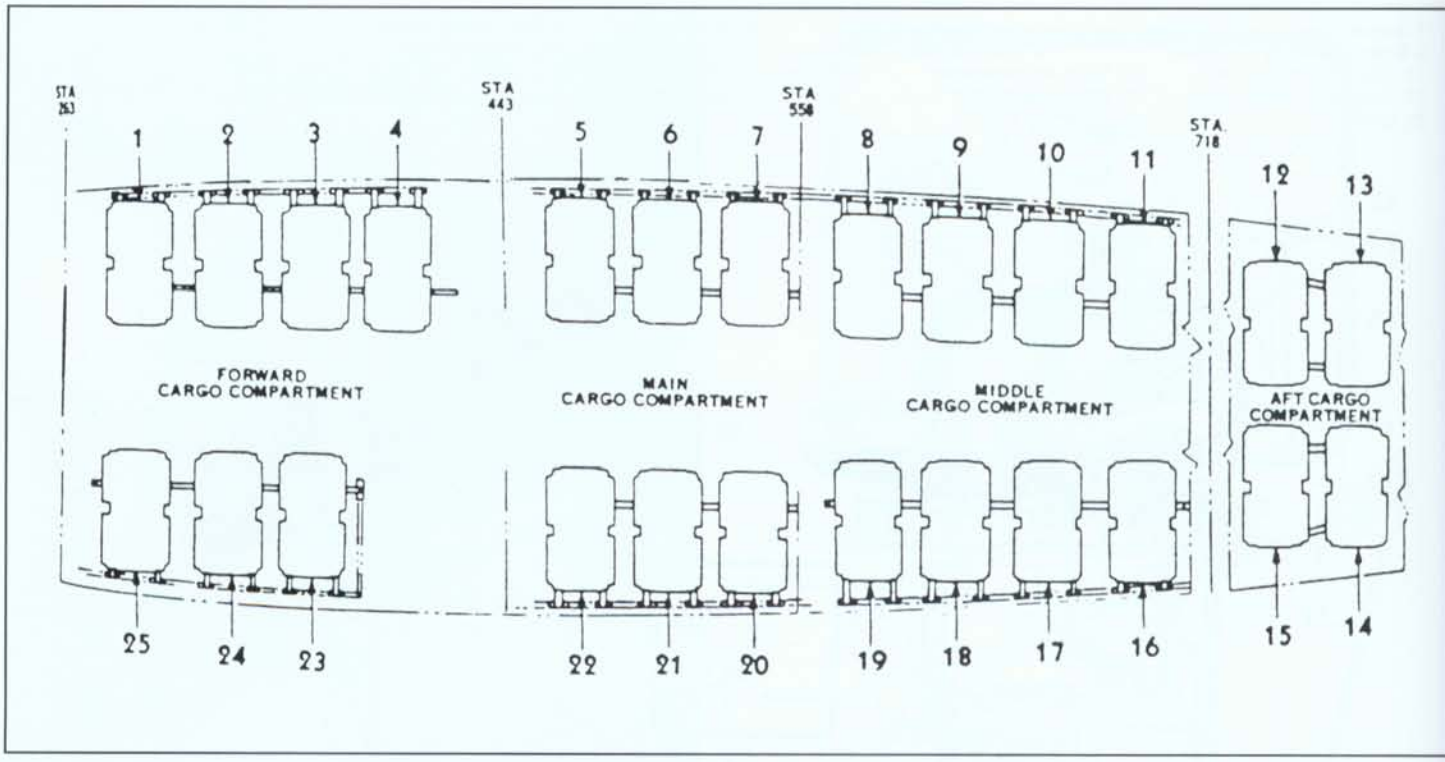
AUXILIARY POWER UNIT COMPARTMENT AND ITS APU

1. Access Door 2. Oil Gage 3. Auxiliary Power Plant 4. Oil Pan 5. Bolt, safety washer
6. Mount Assembly 7. Filter 8. Shut-Off Valve, Tube 1 9. Support on Floor 10. Oil Drain Plug
11. Clip, Bolt, Washer, Nut 12. Tube, to transmitter 13. Duct 14. Hose 15. Clip, Bolt, Spacer 16. Duct
17. Clip, Bolt, Washer, nut 18. Elbow LH and RH 19. Governor Speed and Choke Control 20. Starter Switch
21. Ignition

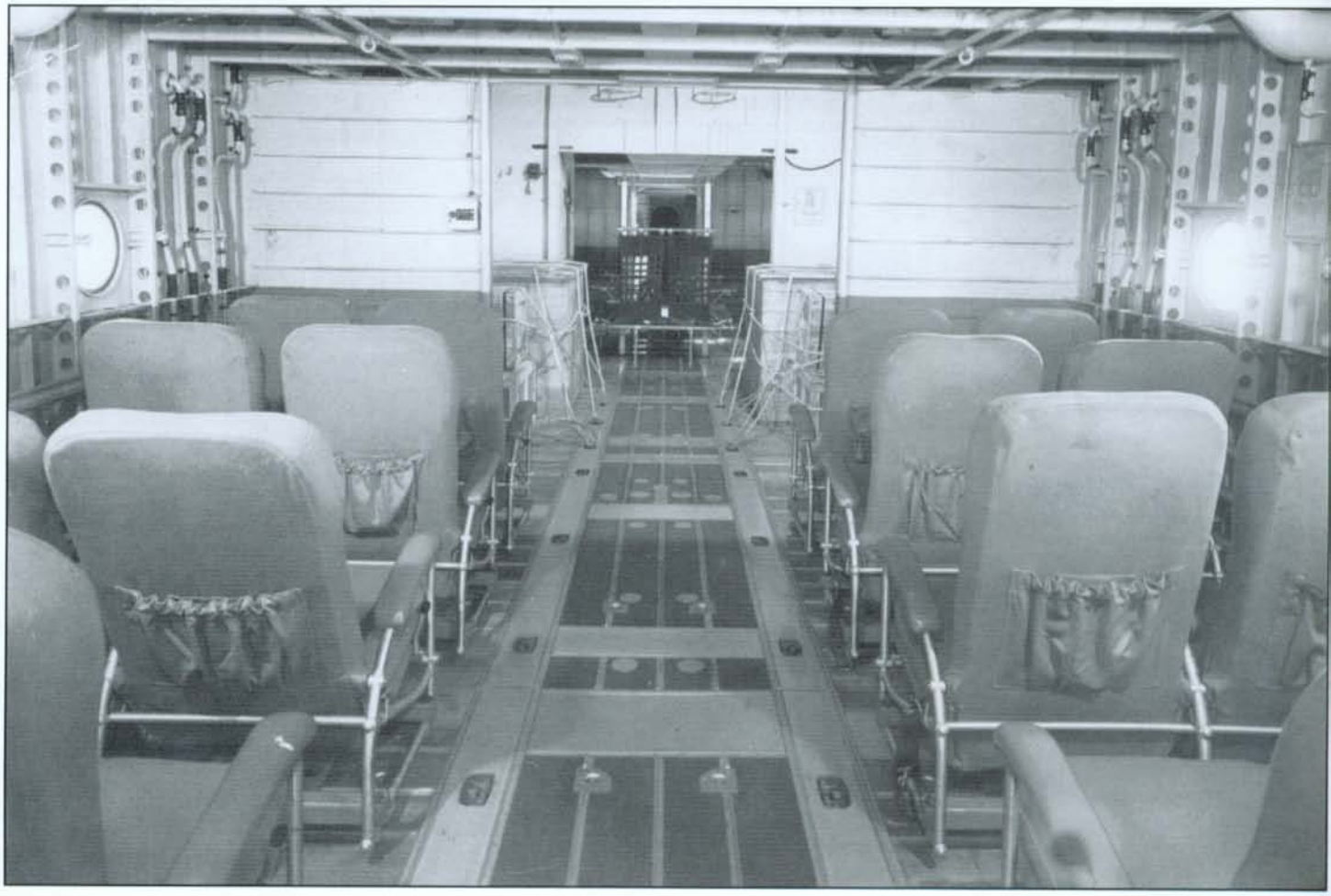




JRM PASSENGER SEATING ARRANGEMENT



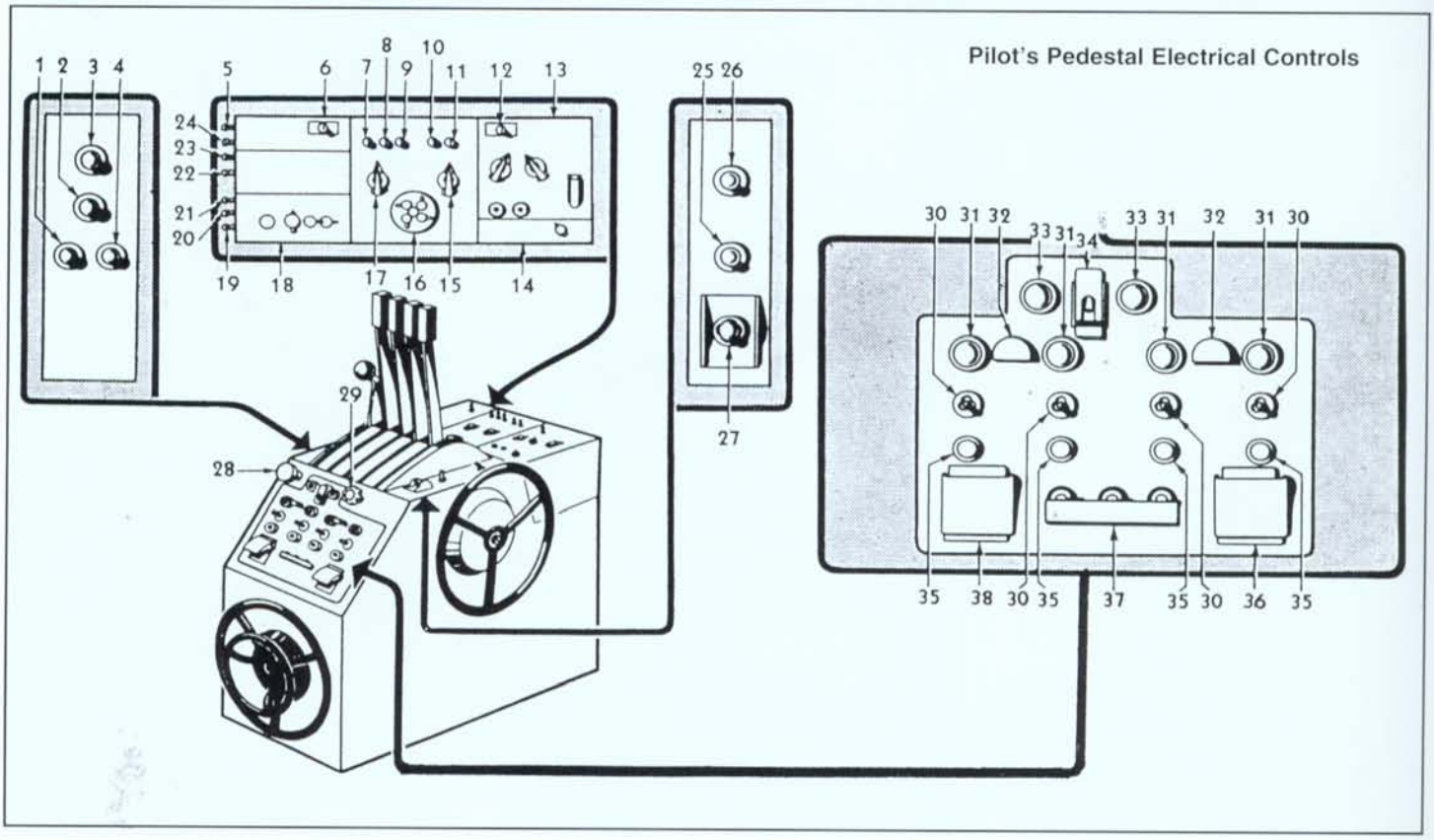
Below, plush passenger seats installed in the middle cargo compartment, view looking forward. (Martin via Stan Piet)



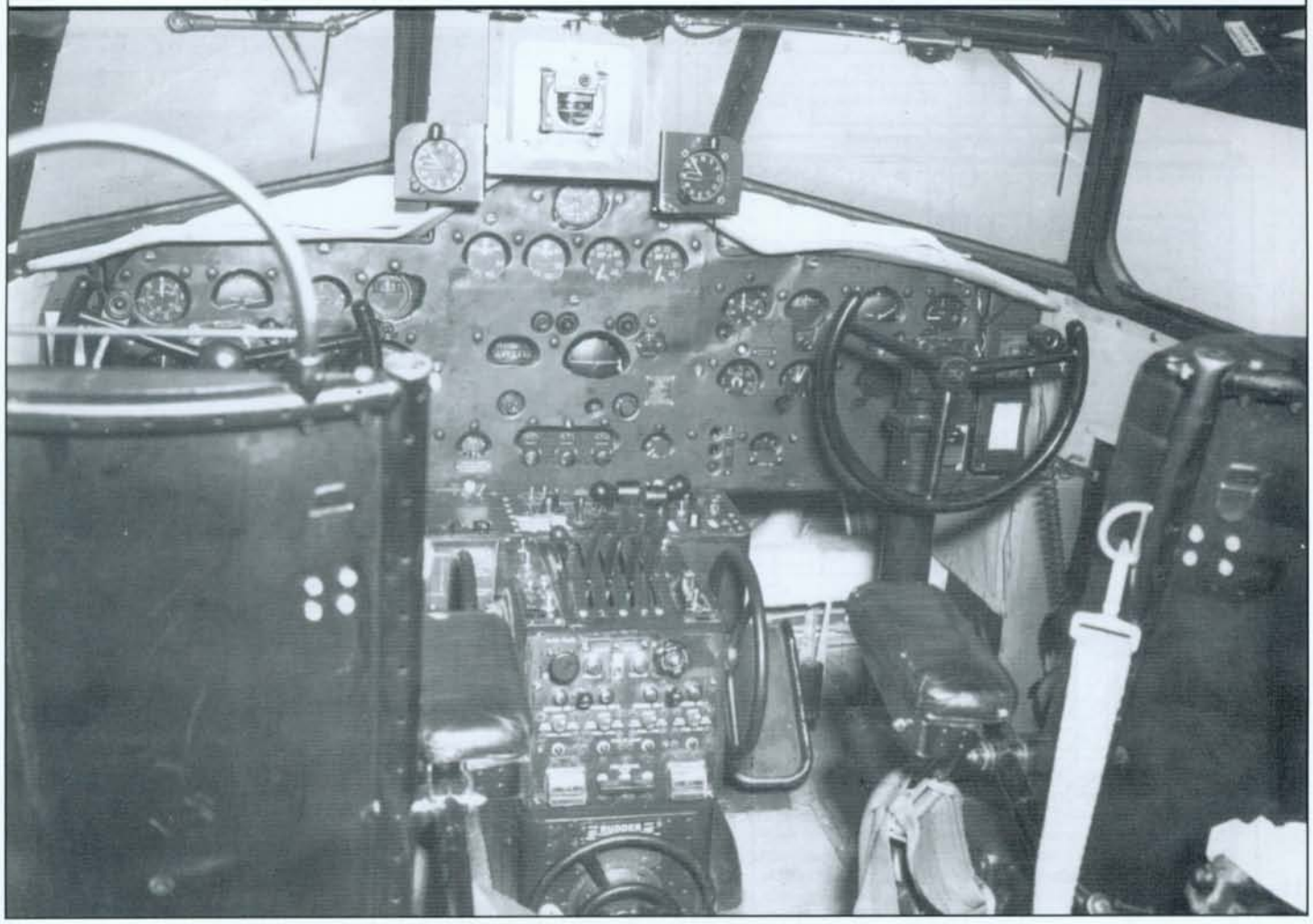
NAVIGATOR'S AND RADIO OPERATOR'S STATIONS

Above, XPB2M-1R flightdeck with flight engineer's station in the left foreground. The navigator's table and station on the left and the radio operator's station on the right. (via Combat Models) Below, JRM-1 navigator's station and table. (via Kaston)

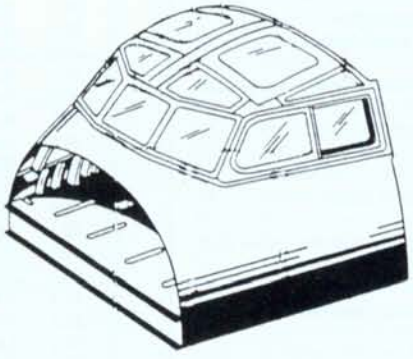
PILOT'S COCKPIT JRM-1 76820 PHILIPPINE MARS



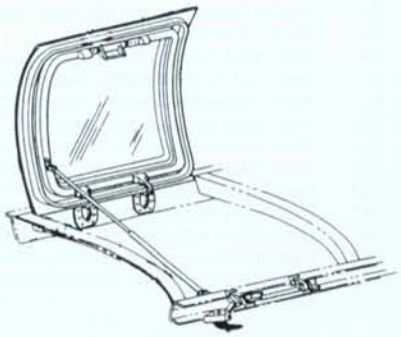
PILOT'S COCKPIT JRM-2 76824 CAROLINE MARS



1.) Automatic Pilot Booster No. 1 Circuit Breaker
2.) Windshield Wiper Switch
3.) Windshield Anti-Icer Switch
4.) Automatic Pilot Booster No. 2 Circuit Breaker
5.) P.E.D. Lights Circuit Breaker
6,) Master Radio Switch
7.) Left Landing Light Switch
8.) Right Landing Light Switch
9.) Anchor Lights
10.) Auxiliary Running Lights
11.) Position Lights
12.) Utility Receptacle Switch
13.) I.F.F. Radio Control
14.) A.T.C. Transmitter Control
15.) Propeller Panel Lights Rheostat
16.) Ignition Switch Unit
17.) Instrument Panel Lights Rheostat
18.) Radio Transmitter Control
19.) Wing Flap Turn-and-Bank Circuit Breaker
20.) Wing Flap Controls Circuit Breaker
21.) Trim Tab Balance Circuit Breaker
22.) Windshield Wiper Circuit Breaker
23.) Landing Lights Circuit Breaker
24.) Running Lights Circuit Breaker
25.) Trim Tab Balance Switch
26.) Anti-Glare Flood Light Switch
27.) Wing Flap Position Switch
28.) Automatic Pilot On-Off Control
29.) Propeller Synchronizer Control Knob
30.) Propeller Manual Selector Switch
31.) Propeller Control Indicating Lights
32.) Panel Lights
33.) Amber Reverse Pitch Indicating Lights
34.) Reverse Pitch Safety Control Switch
35.) Propeller Reset Push-Button
36.) Propeller No. 3 Reverse Control Switch
37.) Pilot's and Flight Engineer's Propeller Control Throw-Over Switch
38.) Propeller No. 2 Reverse Control Switch

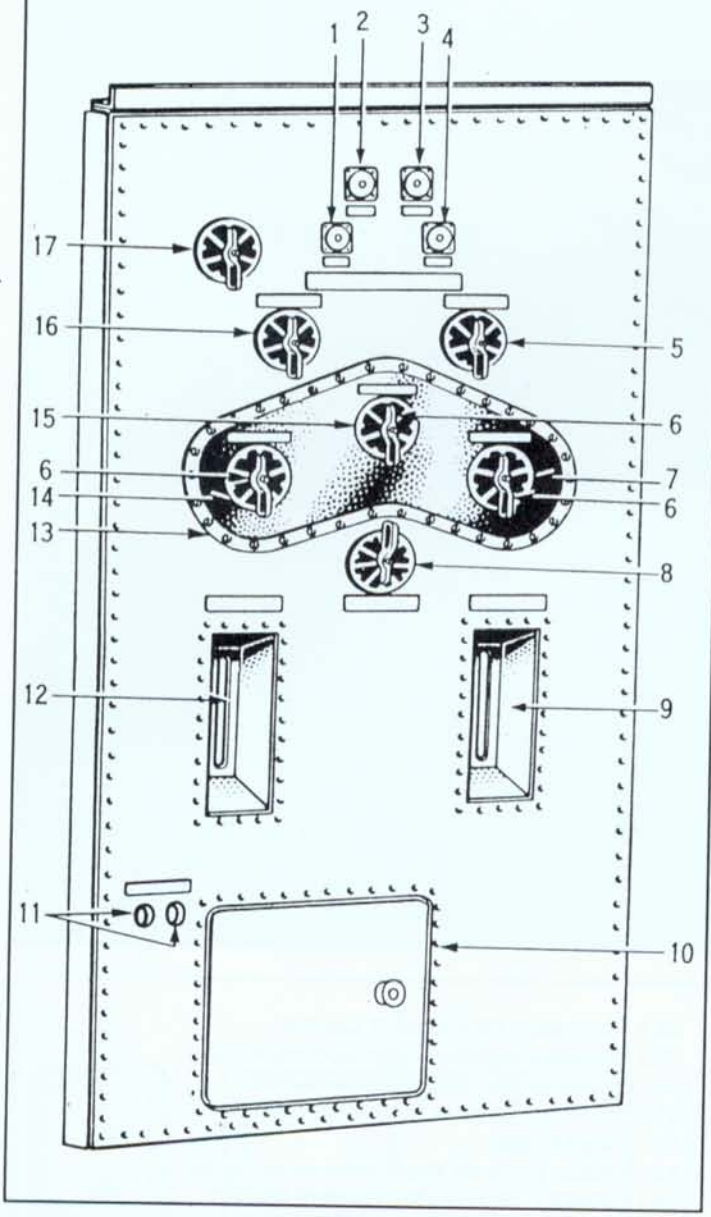


PILOT'S ENCLOSURE



PILOT'S ESCAPE HATCH

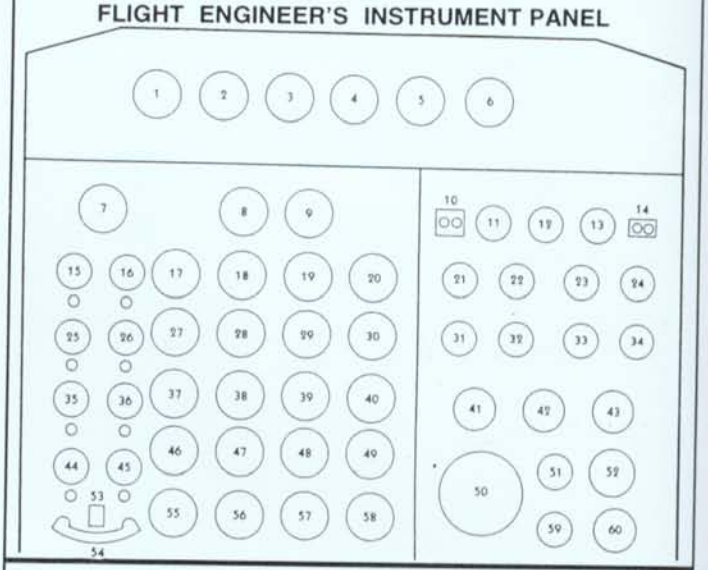
FLIGHT ENGINEER'S STATION



FLIGHT ENGINEER'S FUEL PANEL

1.) Hydraulic Pressure Wing Flap Gage
2.) Surface De-Icer Pressure Gage
3.) Propeller De-Icer Pressure Gage
4.) Hydraulic Pressure Flight Controls Pump Gage
5.) Engine Selector Valve Dial and Handle, engines Nos. 2 and 3
6.) Switch Box Handle
7.) Hull Tanks Supply, to engines or wing tanks selector valve dial
8.) Main Hull Tanks Selector Valve Dial and Handle
9.) Water Separator Transfer Pump No. 1 Sight Gage
10.) Light Bulb Stowage Compartment
11.) Water Separator Angle Drain Valves
12.) Water Separator Transfer Pump No. 2 Sight Gage
13.) Dial Panel Plate Assembly
14.) Hull Tanks Supply, to engines or wing tanks selector valve dial
15.) Cross-Feed Valve Dial
16.) Engine Selector Valve Dial and Handle
17.) Wing Tank Supply, to auxiliary power plant selector valve dial and handle

FLIGHT ENGINEER'S INSTRUMENT PANEL



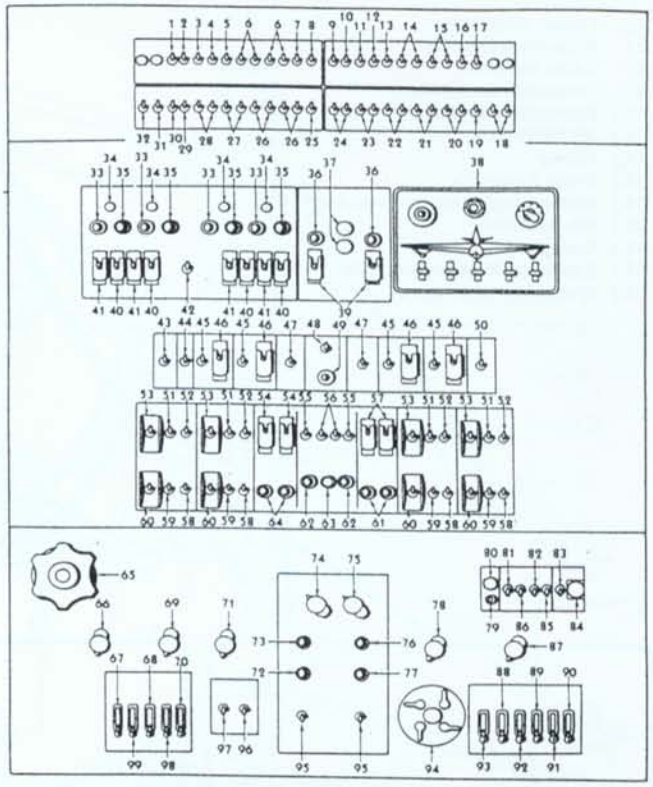
1.) Oil Cooler Flap position Indicator
2.) Engine Nos. 1 and 2 Carburetor Air temperature Indicator
3.) Engine Nos. 3 and 4 Carburetor Air temperature Indicator
4.) Cowl Flap Position Indicator
5.) Altimeter
6.) Clock
7.) Oil Quantity Gage
8.) Engine Nos. 1 and 2 Fuel Flow Gage
9.) Engine Nos. 3 and 4 Fuel Flow Gage
10.) Carbon Monoxide Danger Indicator Light, Indicator Light Switch
11.) Left Auxiliary Power Plant Ammeter
12.) Battery Ammeter
13.) Right Auxiliary Power Plant Ammeter
14.) Voltage Test Jacks, positive and negative
15.) Left Forward Hull Tank Fuel Quantity Gage
16.) Right Forward Hull Tank Fuel Quantity Gage
17.) Engines Nos. 1 and 2 Front Pump Oil Pressure Gage
18.) Engines Nos. 1 and 2 Fuel Pressure Gage
19.) Engines Nos. 3 and 4 Fuel Pressure Gage
20.) Engines Nos. 3 and 4 Front Pump Oil Pressure Gage
21.) Engine No. 1 Generator Ammeter
22.) Engine No. 2 Generator Ammeter
23.) Engine No. 3 Generator Ammeter
24.) Engine No. 4 Generator Ammeter
25.) Left Center Hull Tank Fuel Quantity Gage
26.) Right Center Hull Tank Fuel Quantity Gage
27.) Engine Nos. 1 and 2 Rear Pump Oil Pressure Gage
28.) Engine 1 and 2 Oil Temperature Gage
29.) Engine Nos. 3 and 4 Oil Temperature Gage
30.) Engine Nos. 3 and 4 Rear Pump Oil Pressure Gage
31.) Engine No. 1 Voltmeter
32.) Engine No. 2 Voltmeter
33.) Engine No. 3 Voltmeter
34.) Engine No. 4 Voltmeter
35.) Left Aft Hull Tank Fuel Quantity Gage
36.) Right Aft Hull Tank Fuel Quantity Gage
37.) Engine Nos. 1 and 2 Taxiing Temperature Gage
38.) Engine Nos. 1 and 2 Flight Temperature Gage
39.) Engine Nos. 3 and 4 Flight Temperature Gage
40.) Engine Nos. 3 and 4 Taxiing Temperature Gage
41.) Auxiliary Power Plant Dual Oil Pressure Indicator
42.) Auxiliary Power Plant Oil Temperature Indicator
43.) Auxiliary Power Plant Engine Temperature Indicator
44.) Left Wing Fuel Tank Quantity Gage
45.) Right Wing Fuel Tank Quantity Gage
46.) Engine Nos. 1 and 2 Manifold Pressure Gage
47.) Engine Nos. 1 and 2 Tachometer
48.) Engine Nos. 3 and 4 Tachometer
49.) Engine Nos.3 and 4 Manifold Pressure Gage
50.) Plexiglas Window
51.) External Air Temperature Indicator
52.) Propeller Synchronizer Tachometer
53.) Low Fuel Level Warning Lights Test Switch
54.) Inclinometer
55-58.) Engine No. 1, 2, 3, 4 Horsepower Indicator
59.) Voltmeter Selector 60.) Voltmeter Selector Switch

FLIGHT ENGINEER'S STATION

Above, JRM-1 flight engineer's station. (Gary Vincent)

FLIGHT ENGINEER'S SWITCH PANEL

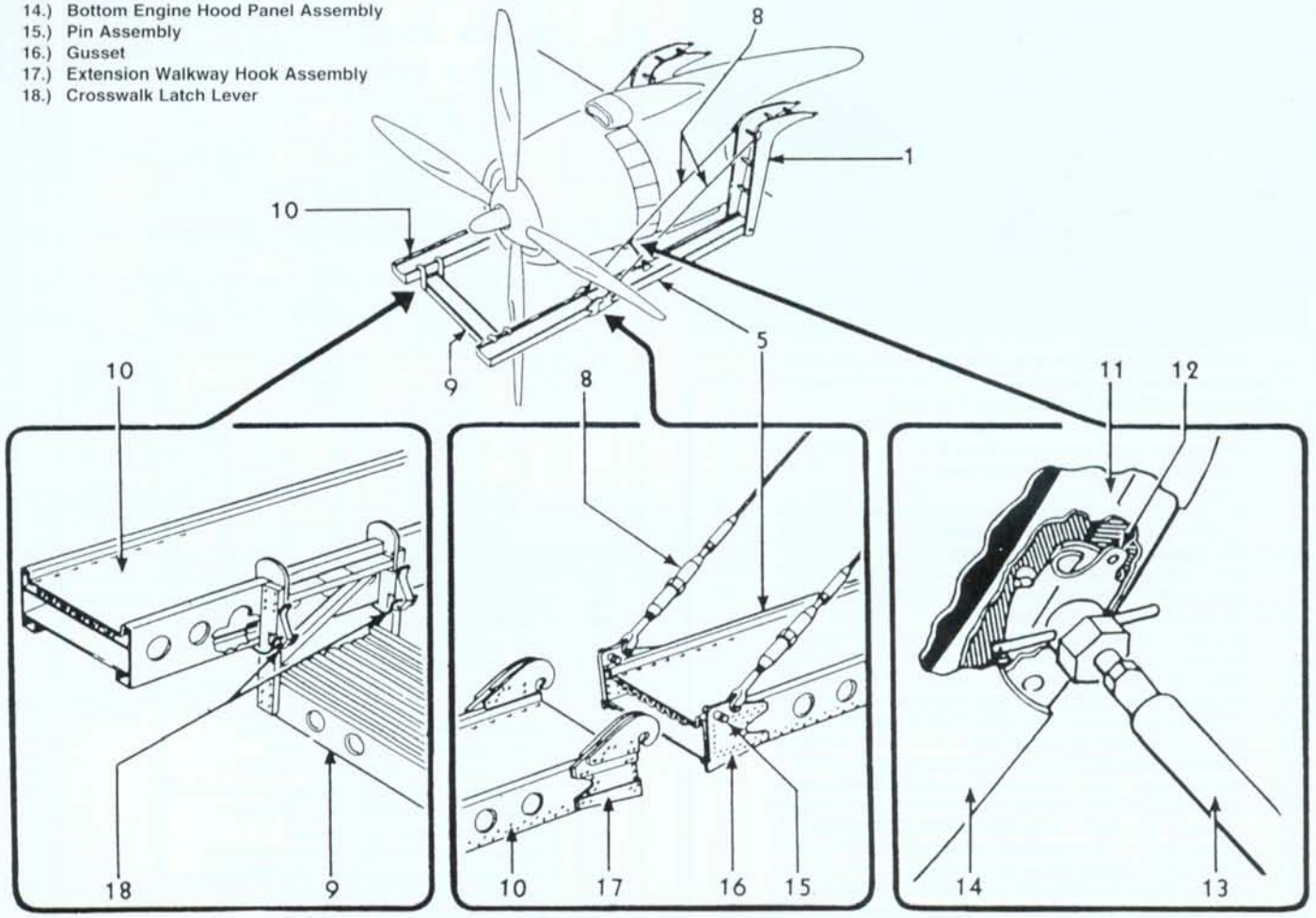
1.) Cowl and Oil Cooler Flap Position Indicator Circuit Breaker
2.) Temperature Indicator Circuit Breaker
3.) Fuel and Oil Indicator Circuit Breaker
4.) Inverter Circuit Breaker
5.) Pilot's Instrument Panel Lights Circuit Breaker
6.) Autosyn Instruments Circuit Breaker
7.) Flux Gate Compass Circuit Breaker
8.) Drift Sight and ADF Circuit Breaker
9.) Auxiliary Power Plant Starter Circuit Breaker
10.) Anchor Lights Circuit Breaker
11.) Boarding Lights Circuit Breaker
12.) Recognition Lights Circuit Breaker
13.) Panel Lights Circuit Breaker
14.) Aft Lights Upper and Lower Circuit Breaker
15.) Forward Lights Upper and Lower Circuit Breaker
16.) Wing Dome Lights Circuit Breaker
17.) Fuel Low Level Warning Lights Circuit Breaker
18.) Left and Right Cabin Heater Fuel Pumps Circuit Breaker
19.) Left and Right Cabin Heater Blower Motor Circuit Breaker
20.) Left and Right Cabin Heater Control Circuit Breaker
21.) Forward and Aft Receptacles Circuit Breaker
22.) Left and Right Wing Power Circuit Breaker
23.) Left and Right Fuel Defuel Pumps Circuit Breaker
24.) Emergency Fuel Pumps Inboard and Outboard Circuit Breaker
25.) Navigator's Power Circuit Breaker
26.) Cowl Flap Circuit Breaker
27.) Flap Control Circuit Breaker, engine Nos. 3 and 4
28.) Oil cooler Switches, engine Nos. 1 and 2
29.) Oil Dilution Circuit Breaker
30.) Main Engine Starter Relay Circuit Breaker
31.) CO Cabin Alarm Circuit Breaker
32.) Windshield and Propeller Anti-Icer Circuit Breaker
33.) Fire Indicator Normal Light (Green)
34.) Fire Control Push Buttons, engine Nos. 1, 2, 3, and 4
35.) Fire Indicator Warning Light (Red)
36.) Auxiliary Power Plant Fire Detector & Extinguisher Control light
37.) Auxiliary Power Plant Fire Detector & Extinguisher Test Switches
38.) Electronic De-Icer Timer
39.) Auxiliary Power Plant Fire Detector & Extinguisher CO_2 Switches
40.) Fuel and Oil Shut-Off Switch
41.) Methyl Bromide Switches
42.) Test Detector Lights Switch, Fire Detector & Extinguisher Control
43.) Propeller Anti-Icer Switch
44.) De-Icer Circuit Breaker
45.) Generator Control Switches
46.) Generator Field Cut-Out Switches
47.) Left and Right Auxiliary Power Plant Generator Control Switch
48.) Battery External Power Switch
49.) Battery External Power Light (Red)
50.) Inverter Transfer Switch
51.) Oil Cooler Flap Switch, engine 1, 2, 3, and 4
52.) Cowl Flap Switch, engine Nos. 1, 2, 3, and 4
53.) Oil Dilution Switch, engine Nos. 1, 2, 3, and 4

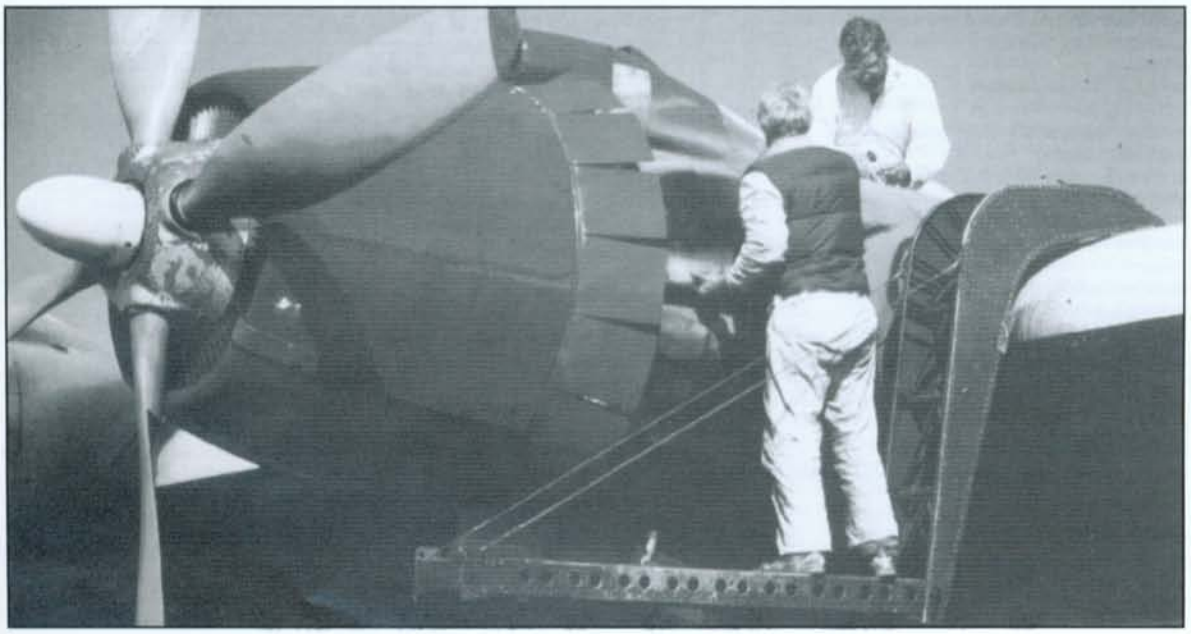


54.) Inboard and Outboard Emergency Engine Fuel Pump Switches
55.) Left and Right Wing Tank Fuel Transfer Pump Switches
56.) Left and Right Fuel Transfer Pump Switches
57.) Left and Right Wing Tank Defuel Pump Switch
58.) Carburetor Anti-Icer Circuit Breaker
59.) Primer Switch, engine Nos. 1, 2, 3, and 4
60.) Direct Cranking Starter Switch
61.) Defuel Pumps Indicator Lights (Red)
62.) Fuel Transfer Pumps Light (Red)
63.) Fuel Transfer Pumps Light Test Switch
64.) Emergency Fuel Pump Indicator Lights (Red)
65.) Propeller Synchronizer Control Knob
66.) Engineer's Dome Light Switch
67.) Hydraulic Booster Motor Circuit Breaker
68.) Propeller Power Booster Circuit Breaker
69.) Instrument Panel Lights Switch
70.) External Power Circuit Breaker
71.) Panel Lights Switch
72.) Cabin Heater Left Fuel Pump Indicator Light
73.) Cabin Heater Left Ignition Light
74.) Left Heater Control Switch
75.) Right Heater Control Switch
76.) Cabin Heater Right Ignition Light
77.) Cabin Heater Right Fuel Pump Indicator Light
78.) Fuel Panel Lights Switch
79.) Booster Low Pressure Warning Push Button
80.) Booster Low Pressure Warning Light (Red)
81.) Hydraulic Booster Relay Circuit Breaker
82.) Desk Light Switch
83.) Receptacle Switch
84.) Utility Receptacle
85.) Boarding Light Switch
86.) Hydraulic Booster Switch
87.) Overhead Panel Light Switch
88.) Cargo Hoist Circuit Breaker
89.) Radar Power Circuit Breaker
90.) Radio Power Circuit Breaker
91.) Navigator's Radar Power Circuit Breaker
92.) Galley Grill Circuit Breaker
93.) Power Forward Circuit Breaker
94.) Main Engine Ignition Switch
95.) Heater Fuel Pump Switches
96.) Auxiliary Power Plant Ignition Switch, right
97.) Auxiliary Power Plant Ignition Switch, left
98.) Wing Flap Motor Circuit Breaker
99.) Propeller Normal Circuit Breaker

ENGINE WORKING PLATFORM

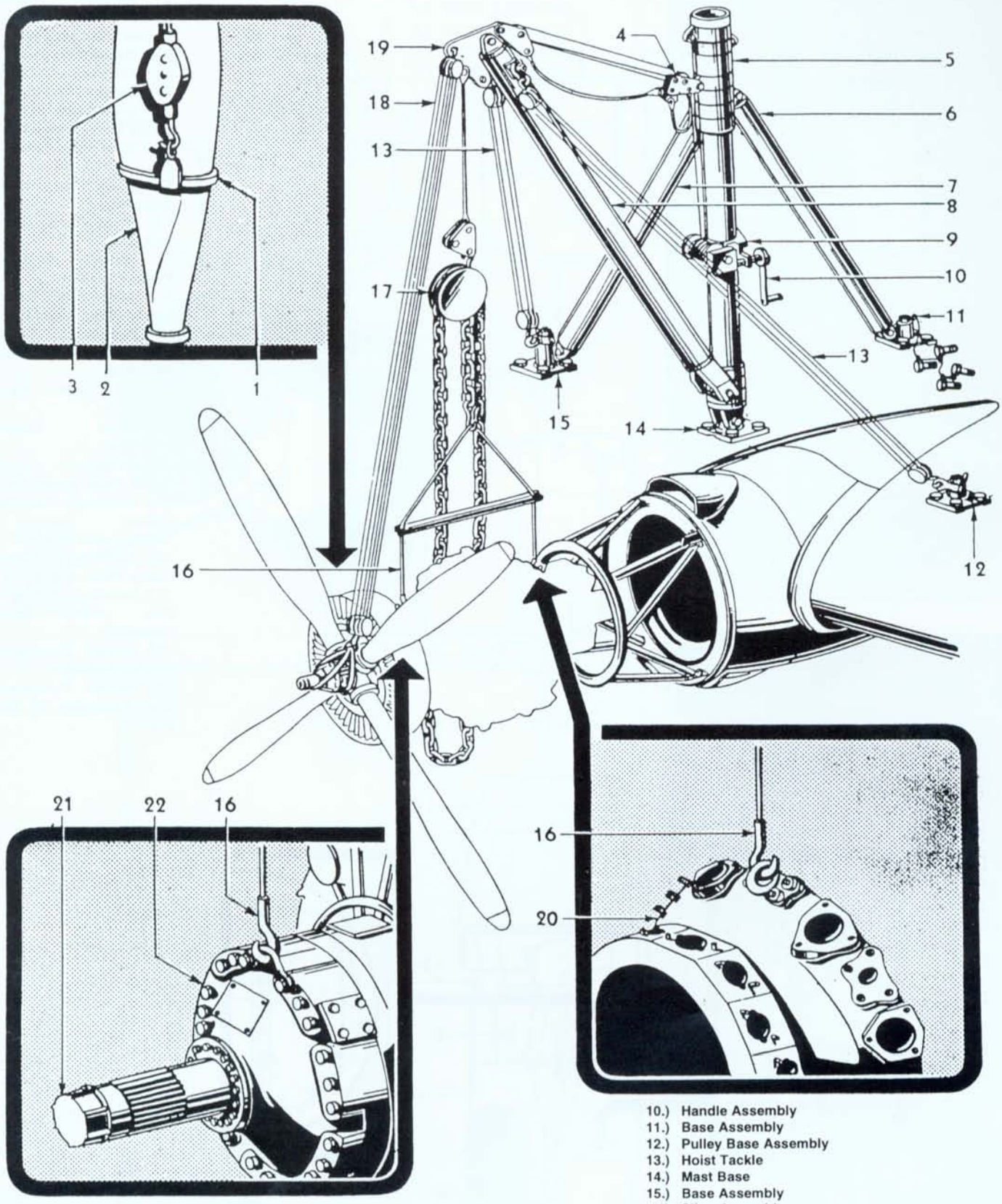
1.) Ladder Assembly
5.) Walkway Assembly
8.) Cable Assembly
9.) Crosswalk Assembly
10.) Extension Assembly
11.) Aft Hood Ring
12.) Fitting
13.) Brace Assembly
14.) Bottom Engine Hood Panel Assembly
15.) Pin Assembly
16.) Gusset
17.) Extension Walkway Hook Assembly
18.) Crosswalk Latch Lever





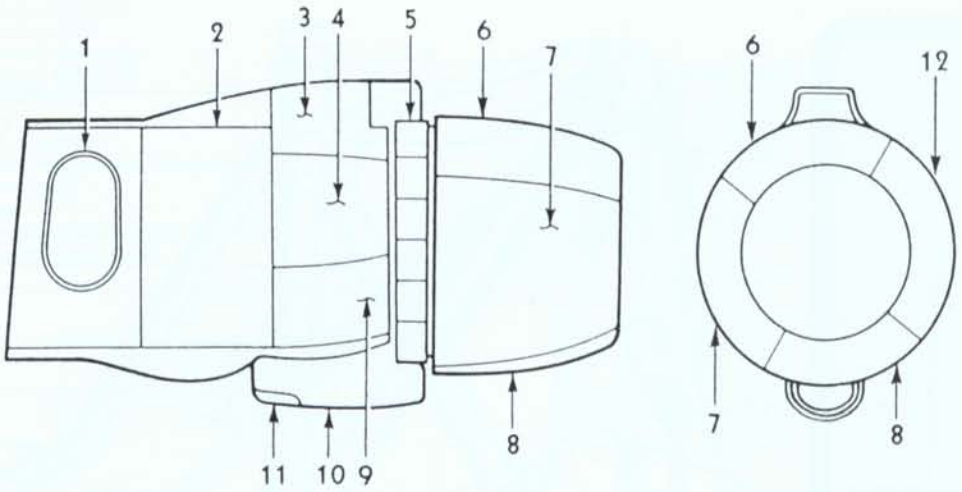
At left, engine working platform installed on one of the FIFT (Forest Industries Flying Tankers Limited) two remaining Mars flying boats in October 1985. The engine cowling and the engine working platform are red. The prop dome is white, the propeller is grey with red tips. The upper accessory panel is being removed. (Gary Vincent)

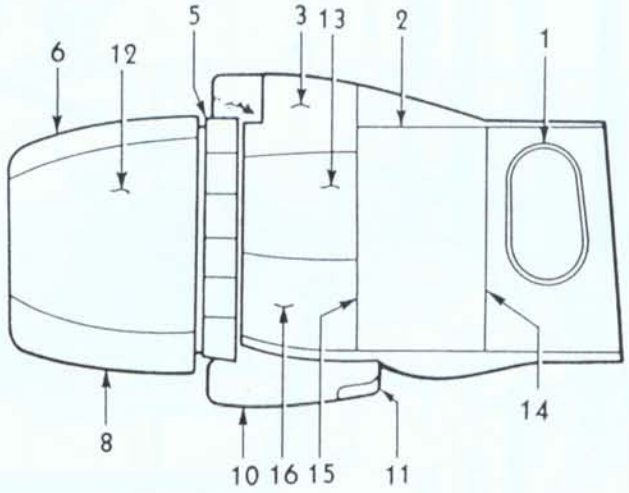
ENGINE AND PROPELLER HOIST

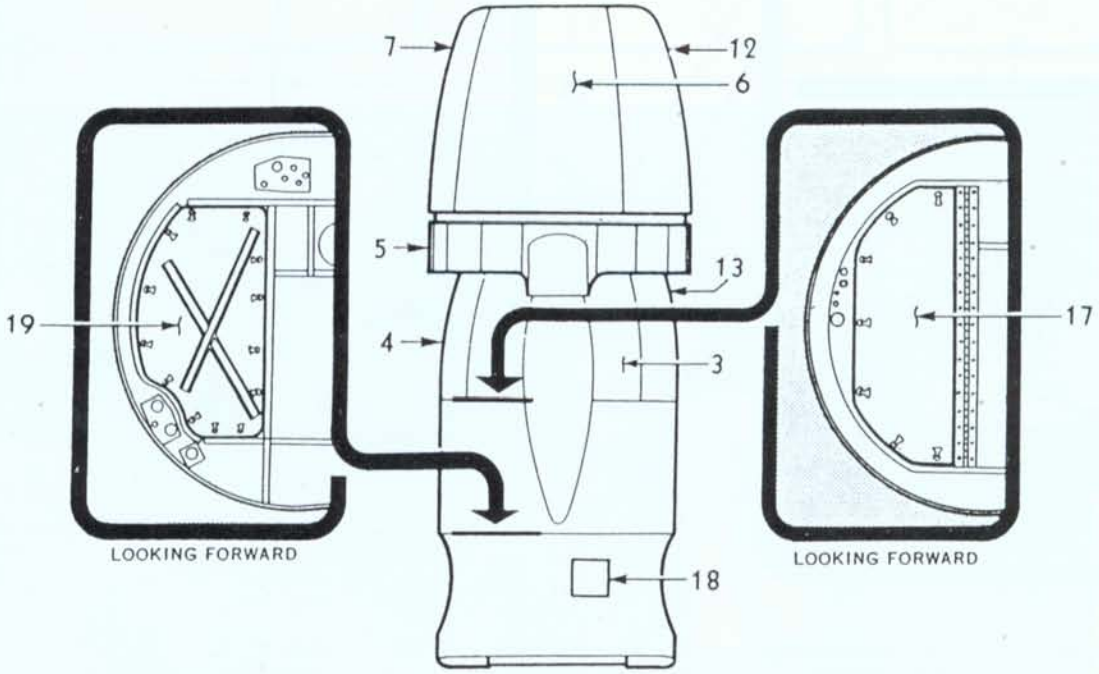


1.) Prop Blade Hoist Collar
2.) Propeller Blade
3.) Hoist Block
4.) Block Assembly Mast
5.) Mast Assembly
6.) Brace Assembly
7.) Brace Assembly
8.) Boom Assembly
9.) Winch Assembly
10.) Handle Assembly
11.) Base Assembly
12.) Pulley Base Assembly
13.) Hoist Tackle
14.) Mast Base
15.) Base Assembly
16.) Sling Assembly
17.) Hoist
18.) Hoist Installed
20, 22.) Engine Block
21.) Thread Protector Cap

ENGINE NACELLE ACCESS PANELS AND DOORS





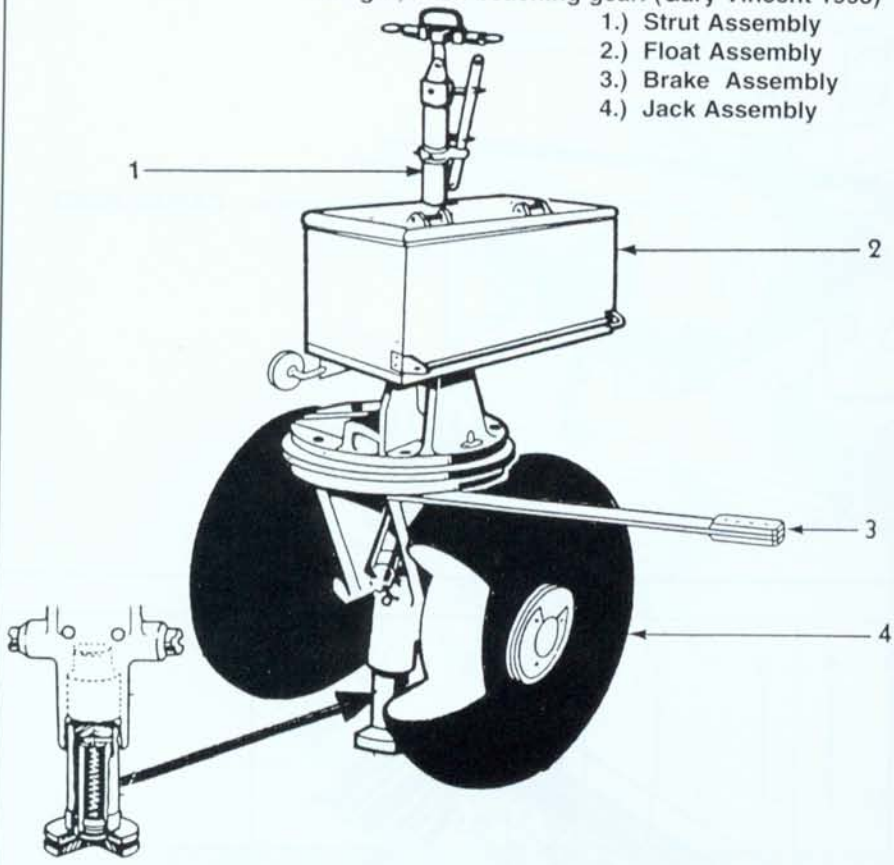


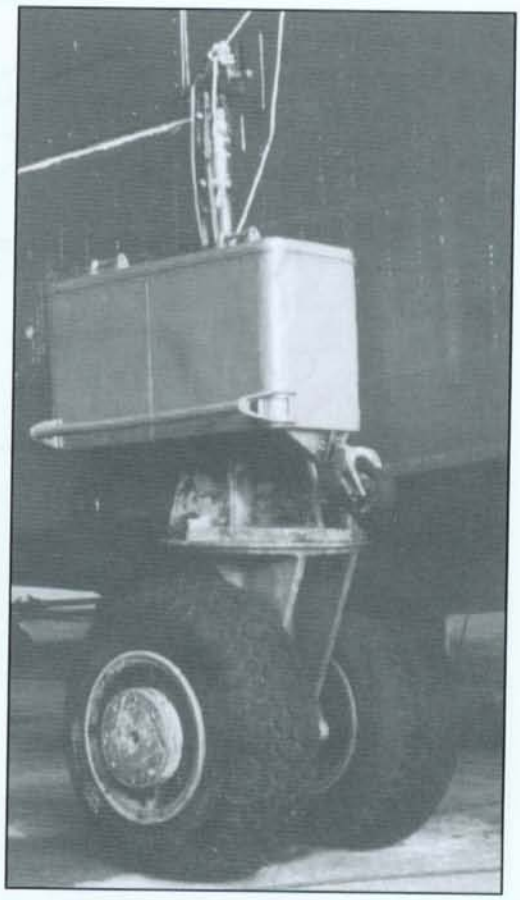
1.) Manhole Inside Leading Edge of Wing, access from catwalk
2.) Nacelle Assembly
3.) Accessory Cowl Top Panel Assembly
4.) Accessory Cowl Upper Panel Assembly
5.) Cowl Flap Assembly
6.) Hood Top Panel Assembly
7.) Hood Panel Assembly
8.) Hood Bottom Panel Assembly
9.) Accessory Cowl Lower Panel Assembly
10.) Accessory Cowl Oil Cooler Panel Assembly
11.) Oil Cooler Flap Assembly
12.) Hood Panel Assembly
13.) Accessory Cowl Upper Panel Assembly
14.) Bulkhead Nacelle Station
15.) Forward Fire Wall
16.) Accessory Cowl Lower Panel Assembly
17.) Nacelle Forward Fire Wall Door Assembly
18.) Nacelle Handhole Cover Assembly
19.) Nacelle Bulkhead Door Assembly, aft fire wall

MAIN AND TAIL BEACHING GEAR

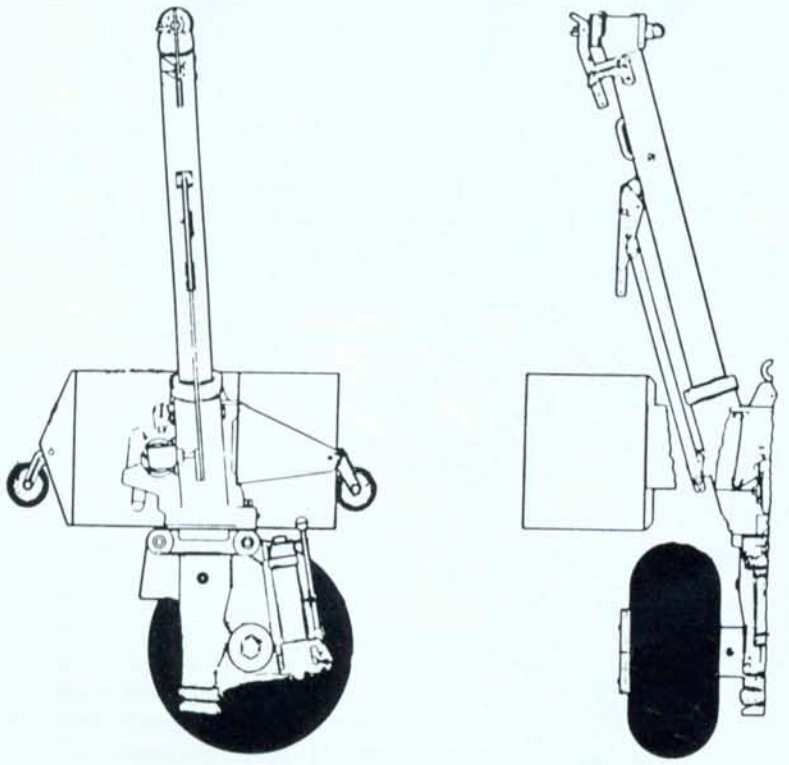
At right, main beaching gear. (Gary Vincent 1993)

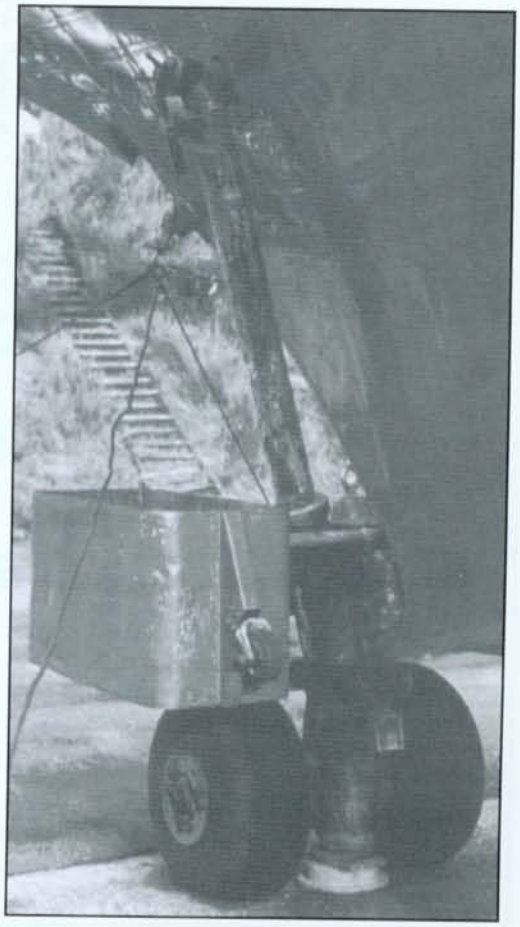
1.) Strut Assembly
2.) Float Assembly
3.) Brake Assembly
4.) Jack Assembly





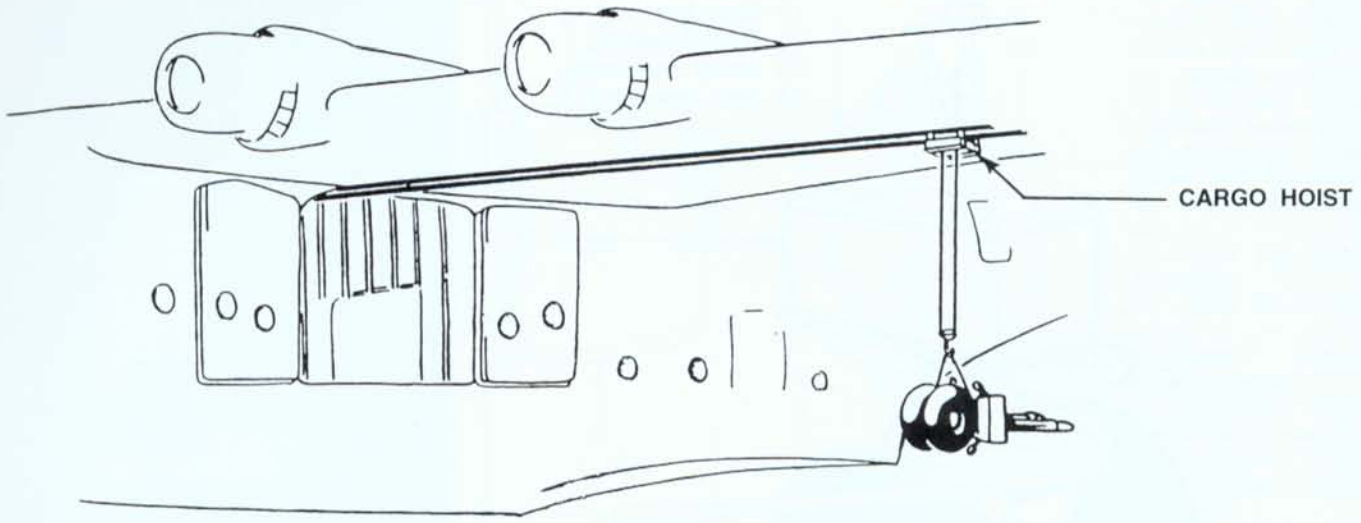
At right, tail beaching gear mounted on the Hawaii Mars. (Gary Vincent 1993)



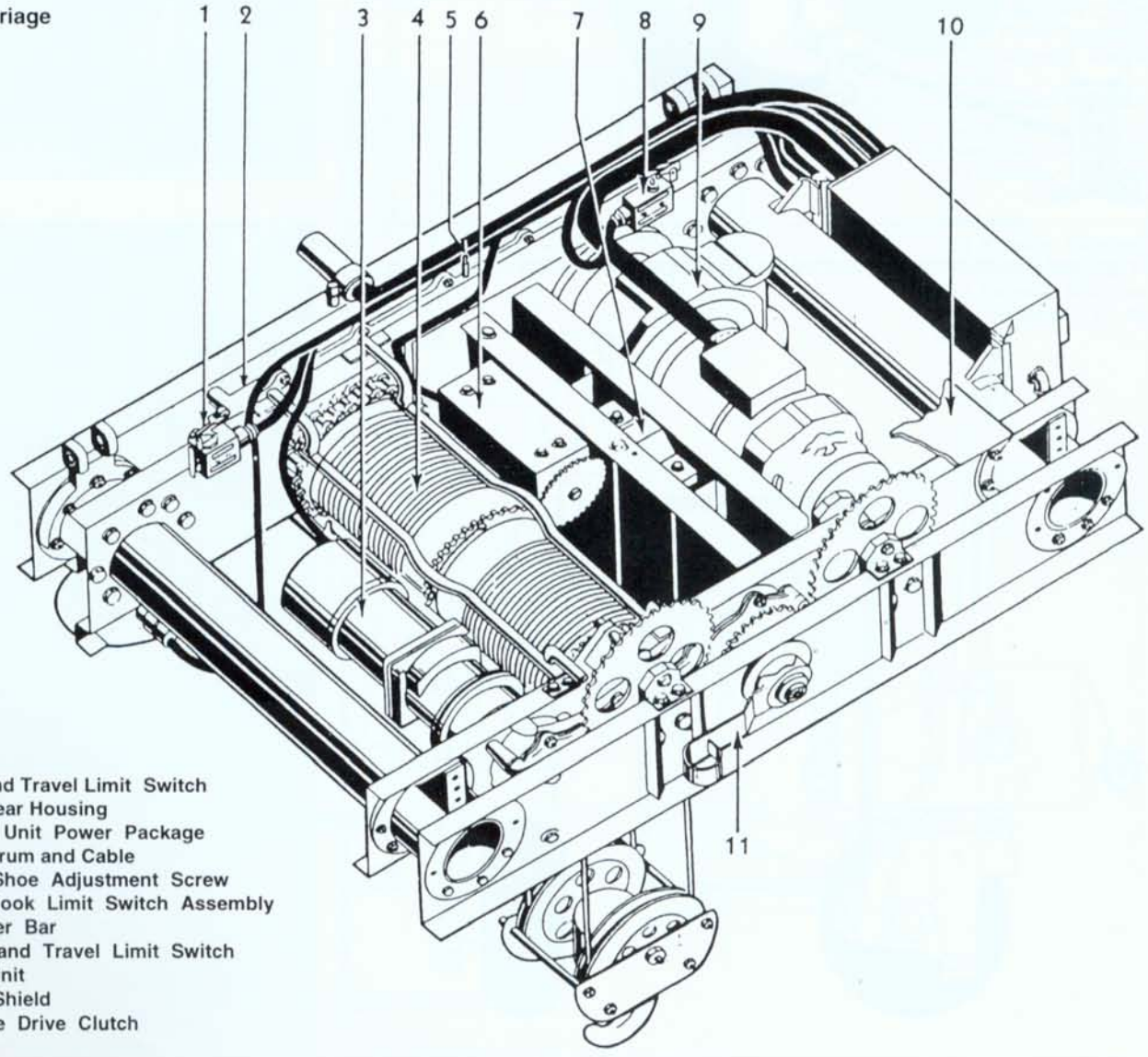


MARS BEACHING GEAR

Beaching Gear Hoist and Sling

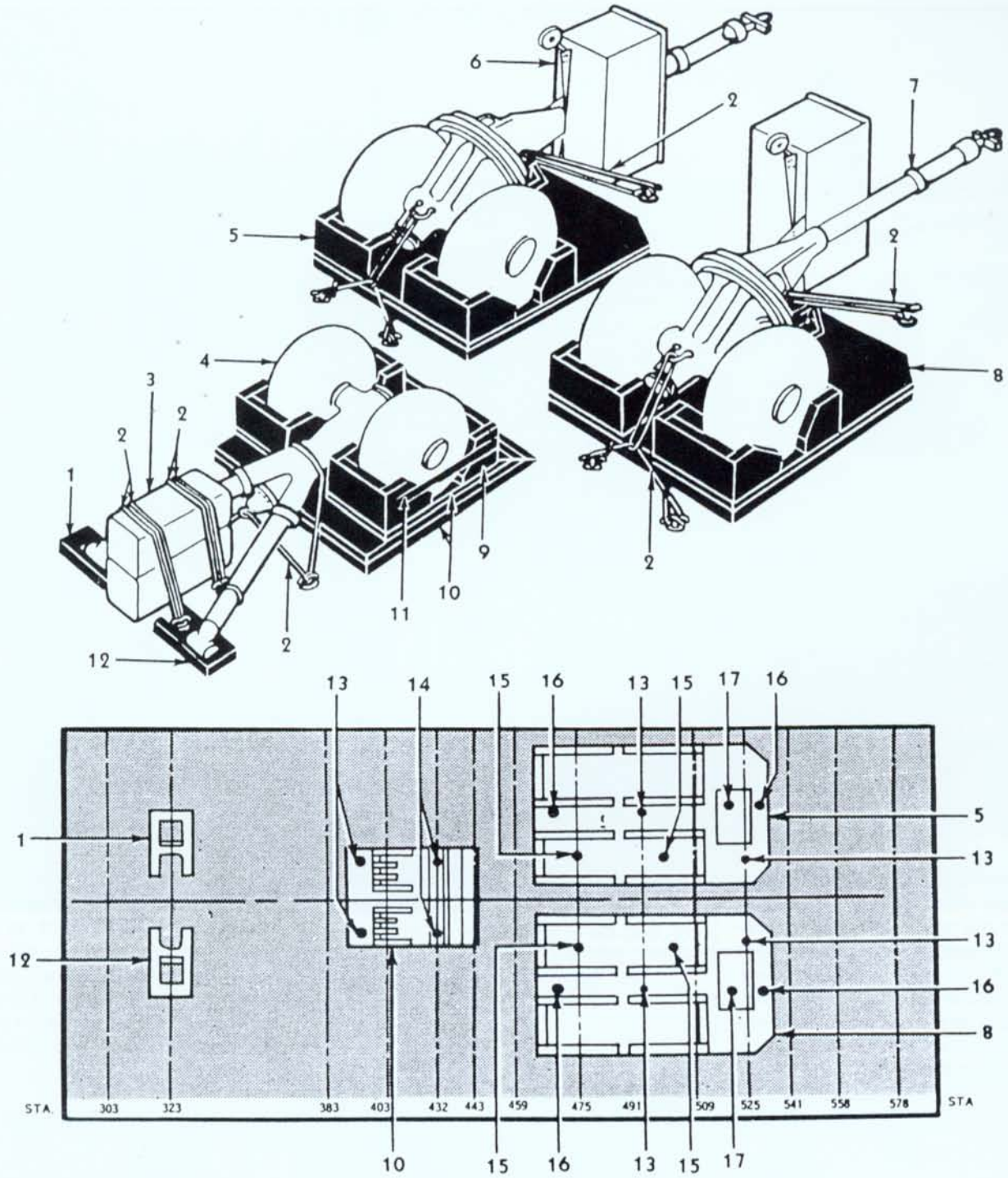


Cargo Carriage



1.) Left Hand Travel Limit Switch
2.) Hoist Gear Housing
3.) Driving Unit Power Package
4.) Cable Drum and Cable
5.) Brake Shoe Adjustment Screw
6.) Hoist Hook Limit Switch Assembly
7.) Equalizer Bar
8.) Right-Hand Travel Limit Switch
9.) Hoist Unit
10.) Spray Shield
11.) Carriage Drive Clutch

BEACHING GEAR STOWAGE



1.) Tail Beaching Gear Strut Chock Assembly RH
2.) Ropes Holding Beaching Gear In Place
3.) Tail beaching Gear Buoyancy Tanks
4.) Tail Beaching Gear
5.) Main Beaching Gear Cradle Assembly RH
6.) Main Beaching Gear LH
7.) Main Beaching Gear RH
8.) Main Beaching Gear Cradle Assembly LH
9.) Tail Beaching Gear Stowage Removable Chock Assembly

10.) Tail Beaching Gear Stowage Cradle Assembly
11.) Tail Beaching Gear Stowage Retaining Bar
12.) Tail Beaching Gear Strut Chock Assembly
13.) Bolt AN5-26, Washer AN970-5, two under head
14.) Bolt AN5-37, Washer AN970-5, two under head
15.) Bolt AN5-36, Washer AN970-5
16.) Bolt AN12-30, Washer AN945-12
17.) Bolt AN12-40, Washer AN945-12

THE PHILIPPINE MARS, BUNO 76820

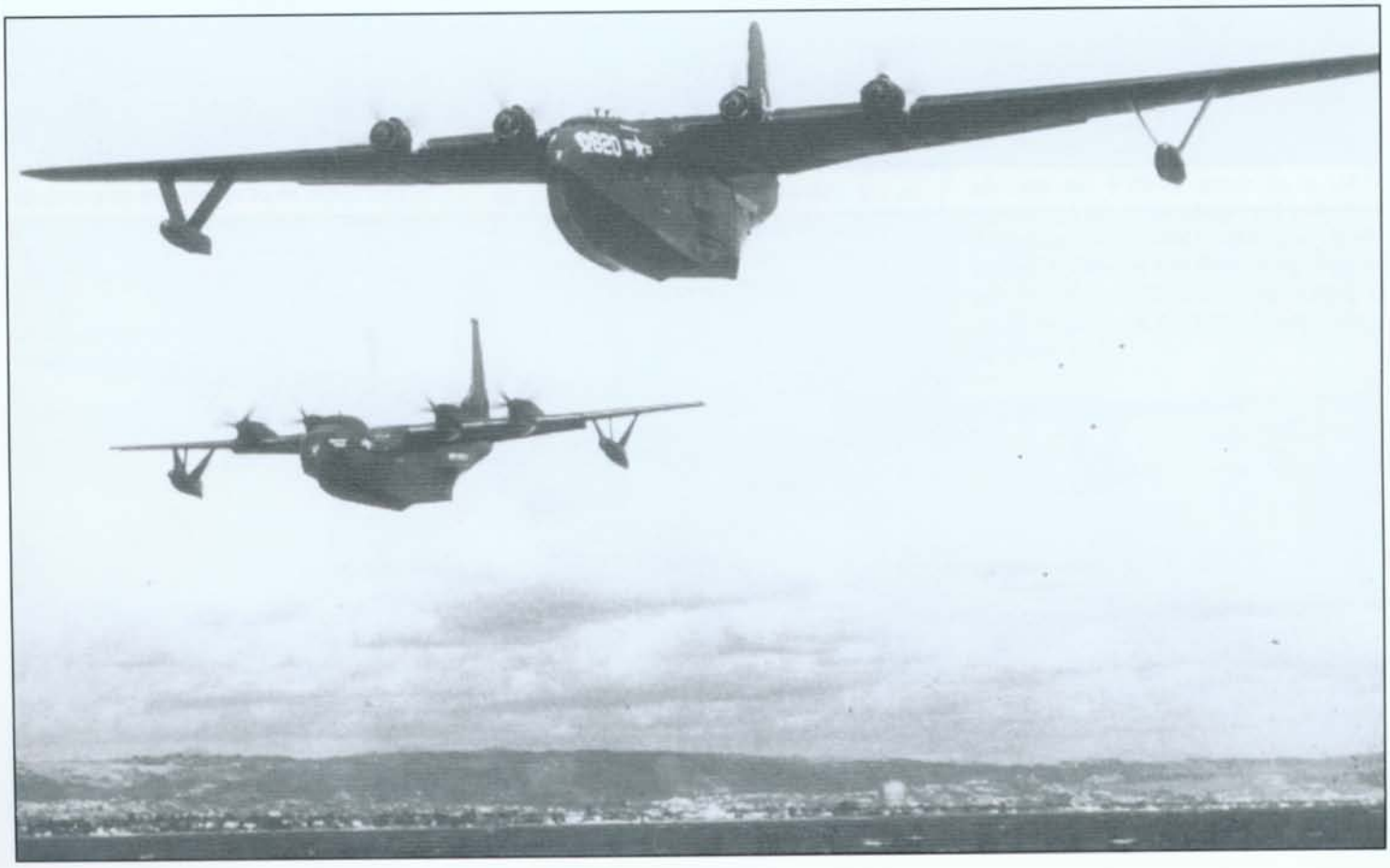
Above, the Philippine Mars at Martin's Middle River Plant on 9-15-45 prior to delivery to the Navy. Note main beaching gear for another JRM in the foreground. (Martin via Stan Piet) Below, 76820 is moored on the Middle River on 10-1-45. The forward door with the cable slanting forward into the water is the sea anchor door. (via Stan Piet)

The JRMs were constructed with 7.5 miles of wiring, 3,000,000 rivets, 60,000 lbs of aluminum, 25,000 lbs of steel, 750 lbs of rubber, 800 lbs of plastics, 800 sq ft of plywood, 650 cubic yards of fabric, 2,000 lbs of copper, tin, zinc, and other metals, 300 gallons of paint, and 24 telephones.

At right top, flight crew of the Philippine Mars pose in front of their aircraft on 6-28-46 prior to a JATO launch from the bay off of NAS Alameda. Note antennas and NATS insignia. (Martin via Stan Piet) At right bottom, the Philippine Mars during its JATO launch on 6-29-46. (Martin via S. Nicolau)

PHILIPPINE MARS

US
NAVY
RA
820



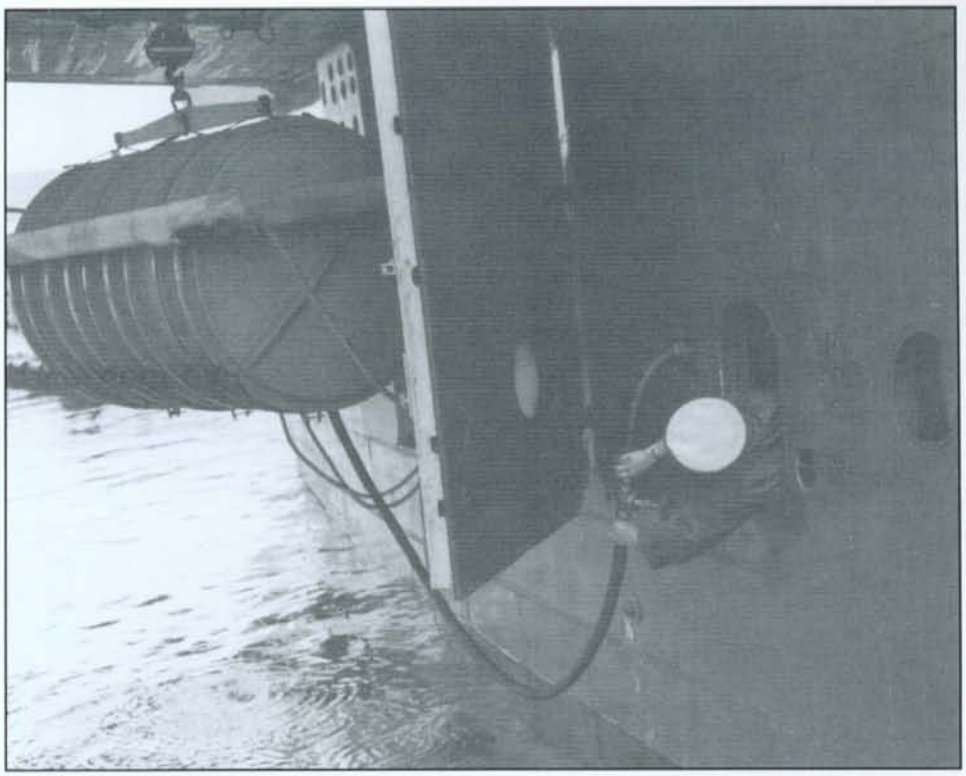
At left top, Philippine Mars with 95 sailors on top of the wings on 5-19-49. On this date the Marshall Mars carried a record 301 sailors from Air Group 5 from Alameda to San Diego. (National Archives) At left Middle, the Philippine Mars after landing at Honolulu with the number one engine missing. The engine tore lose in flight over Hilo. (National Archives) At left bottom, the Philippine Mars in flight with an R3Y Tradewind on 3-31-56 over San Francisco Bay. The Tradewind had just joined VR-2. (Martin via S. Nicolau)

Above, the Philippine Mars at its wooden dock at Honolulu with its cargo being hauled away by a Navy Mule. The aircraft is painted in a short lived scheme which had Philippine Mars and the NATS insignia on the nose with Naval Air Transport Service and 820 painted on the rear fuselage and the letters NATS painted on the tail. (via John Rucks) Below, family portrait in VR-2 markings with 76820 Philippine Mars in the foreground, followed by 76821 Marianas Mars then 76823 Hawaii Mars and JRM-2 76824 Caroline Mars. (National Archives)

RA
820

JRM FUEL SYSTEM

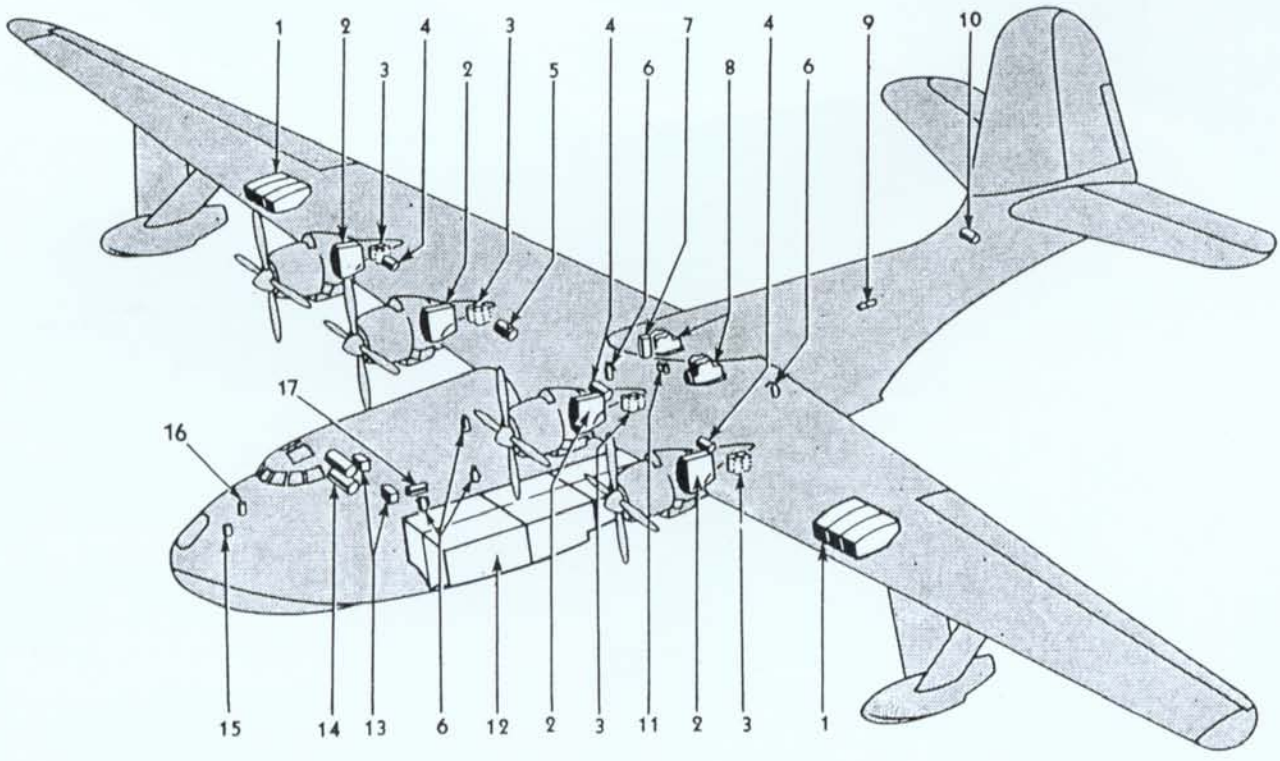
At right, a floating fuel drum has been lifted from the water by the cargo hoist and connected to the JRM's fuel valve to facilitate transfer of fuel. (National Archives)



The JRM Mars had a fuel capacity of 13,220 gallons. The main fuel system consisted of six integral watertight tanks below the lower deck, plus two removable tanks in each wing. All tanks could be individually filled from a centrally located fume-tight compartment. Transfer pumps could be used to dump fuel or to transfer it to floating fuel cells for storage or use elsewhere.

At left top, the Philippine Mars in formation with its landplane competitor, the Lockheed R6O-1 Constitution over NAS Moffett Field. At left bottom, 76820 over San Francisco Bay with the VR-2 tail code "RA". (National Archives)

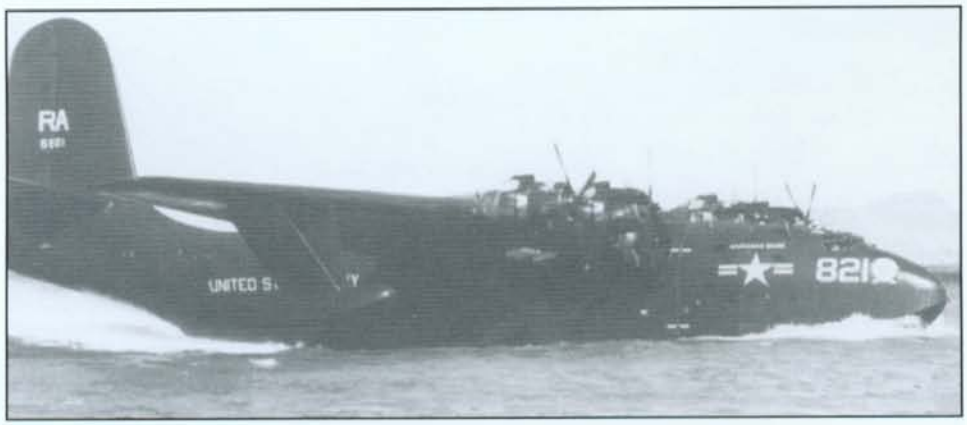
1.) Wing Fuel Tanks
2.) Main Engine Oil Tanks
3.) Fixed Fire Extinguishers, 2 or 4
4.) Carburetor Anti-Icer Tanks
5.) Propeller and Windshield Anti-Icer Tank
6.) Portable Fire Extinguisher
7.) Flap System Hydraulic Tank
8.) Auxiliary Power Plant
9.) Lavatory Water Tank
10.) Hydraulic Tank for Elevator & Rudder
11.) Auxiliary Power Plant Fire Extinguisher
12.) Hull Fuel Tanks
13.) Galley Water Tanks
14.) Flight Deck Water Breakers
15.) Autopilot Hydraulic Tank
16.) Windshield Washer System Tank
17.) Galley Water Breaker



THE MARIANAS MARS, BUNO 76821

MARIANAS MARS IN ACTION

The Marianas Mars was accepted by the Navy in May 1946 and delivered to VR-2 at NAS Alameda shortly thereafter. After a very distinguished career the Marianas Mars had the great honor of making the final Navy Mars flight which terminating at NAS Alameda on 22 August 1956.



This page, the Marianas Mars operating in VR-2 markings. Top, 76821 commences a JATO takeoff in San Fransico Bay. Middle, 76821 maneuvers to enter its wooden floating dock at NAS Alameda. At right, 76821 during high speed taxi with JATO bottles mounted under the wings. (SDAM) Below, Marianas Mars from above during high speed taxi. Note location of wing codes 821 / RA on the upper wing and the heavy exhaust stains. (USN via Craig Kaston)

Previous page top, squadron photo in front of the Marianas Mars. Note the locations of the radio antennas and aerials on the upper fuselage. (USN) At left bottom, 76821 over San Francisco prior to having VR-2 squadron markings applied. (via Clay Jansson)

Above, the Marshall Mars after completion at Martin's Middle River Plant in February 1946. (National Archives) Below, the Marshall Mars overflys freighters in San Francisco Bay shortly after delivery to VR-2 at NAS Alameda in May 1946. (National Archives)

The Marshall Mars began service with VR-2 in February 1946 and was the first JRM-1 assigned to the squadron. On its second Hawaii run, she carried a cargo load of 27,427 pounds which broke the record set by the XPB2M-1R in 1944.

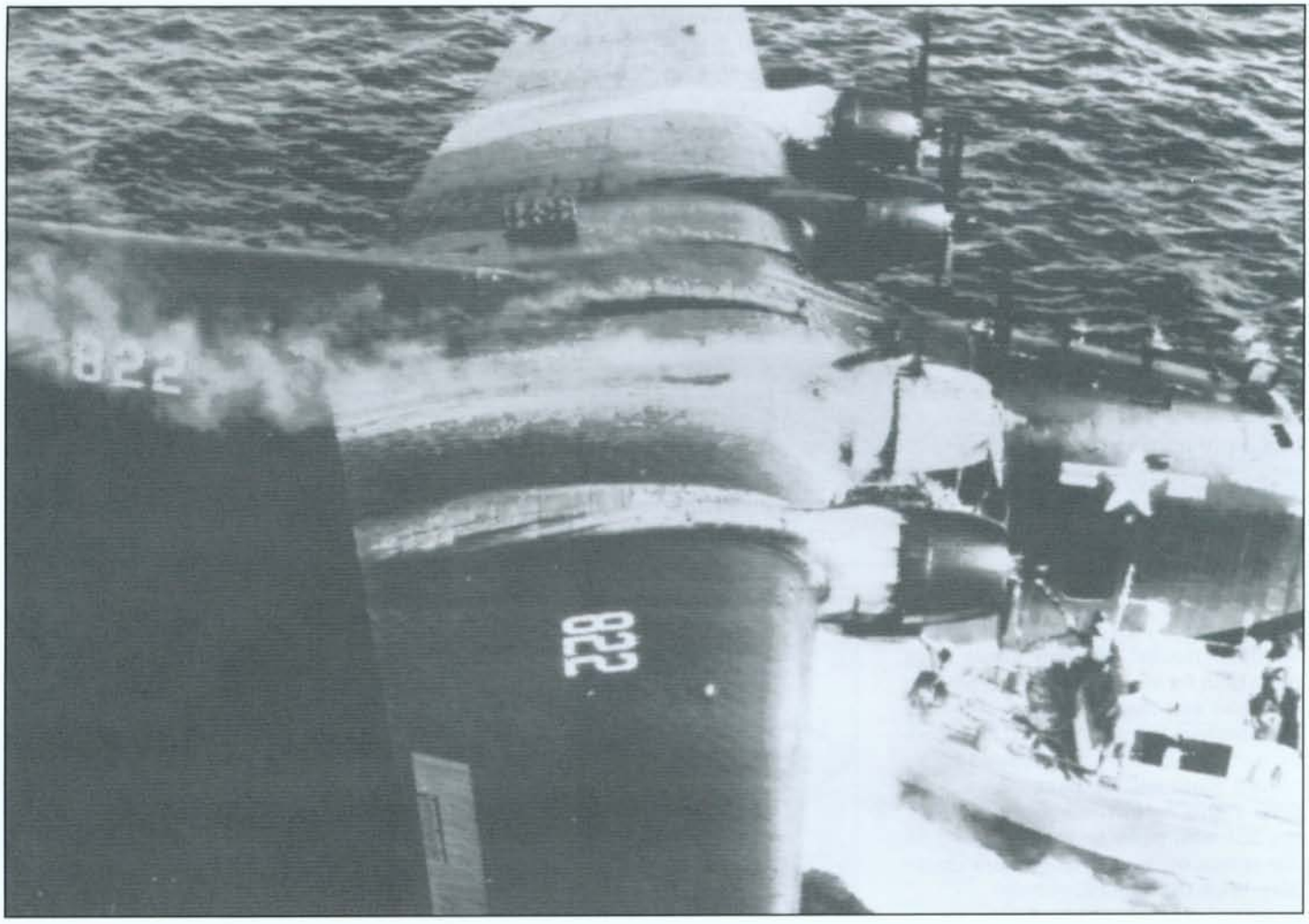
The Navy had Martin establish a six week training course for pilots, radio men and mechanics at the factory. The courses were scheduled to coincide with delivery and transfer to VR-2 of each new Mars. The pilots and crew would complete their training and then be given check rides in their new aircraft, and on completion fly the aircraft to VR-2 at NAS Alameda.

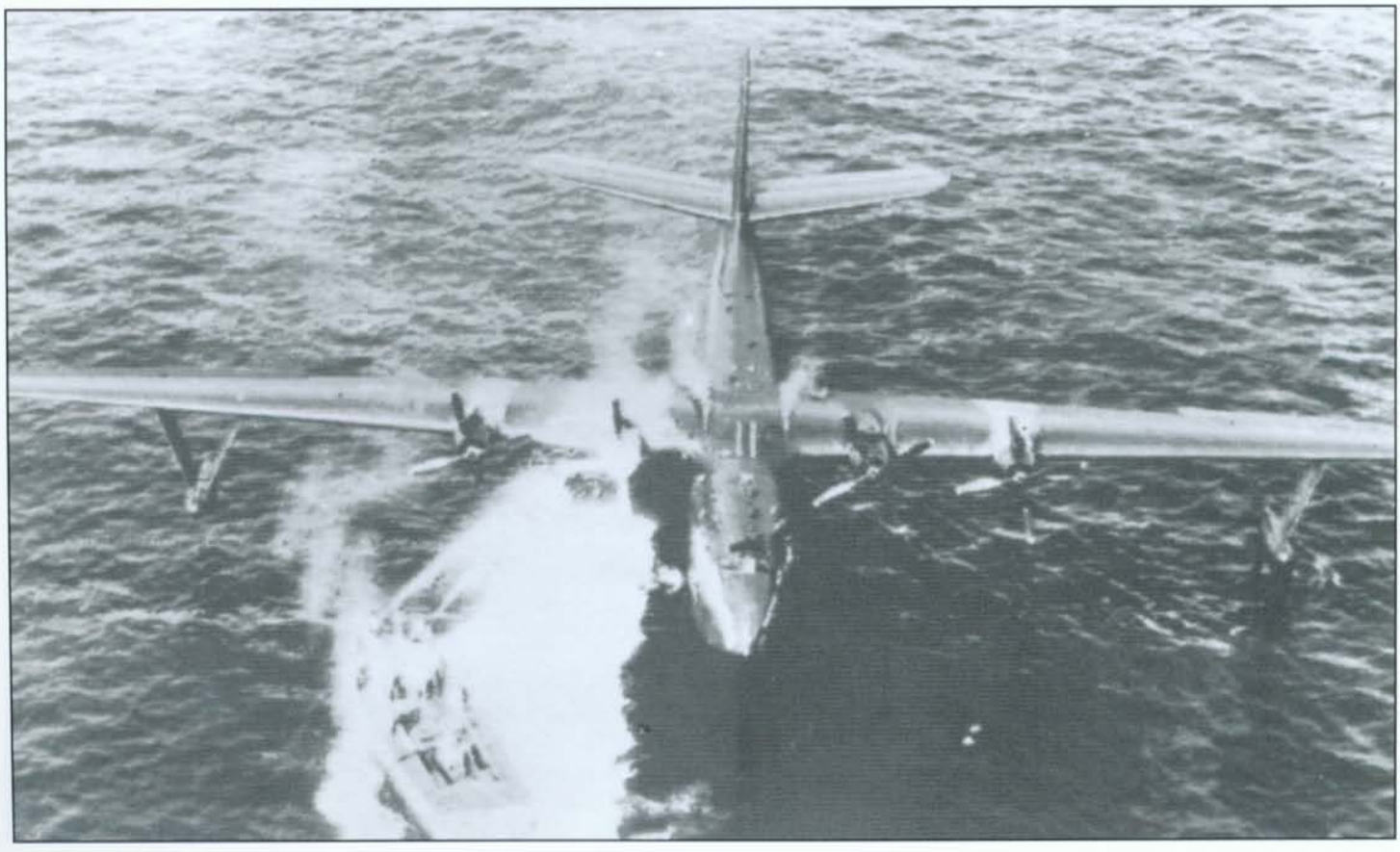
The Marshall Mars participated in an unusual rescue flight in November 1948. She flew a 1,500 mile round trip flight in order to drop several tons of hay and several containers of worms to the SS Swarthmore Victory. The rescue drop was food for six elephants and a large variety of tropical birds which had eaten all the ships stores. The flight was designated "Operation Hayride", and the birds and animals arrived safely in the United States.

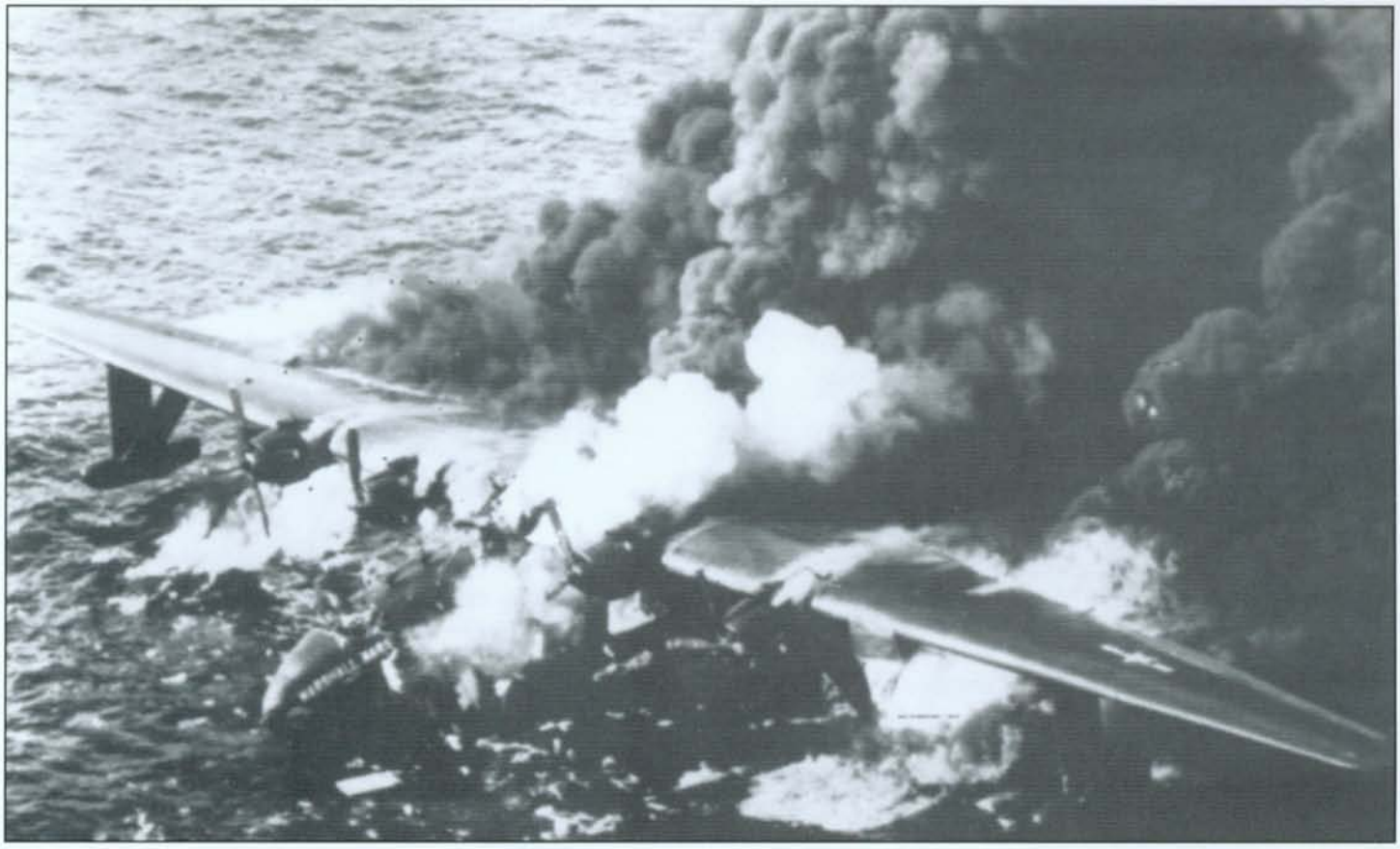
On 19 May 1949, the Marshall Mars set a passenger load-carrying record by transporting 301 airmen from CVG-5 and 7 Mars crewmen from NAS Alameda to NAS North Island. The Air Group's overflow of about 100 men were transported on board the Philippine Mars that same day.

On 5 May 1950 the Marshall Mars' life was cut short when she burned at sea during a short test hop following an engine change. A fire started in the number three engine shortly after takeoff and the fire bottle failed to extinguish the flames. The pilot made an emergency landing south of Diamond Head, where the crew was picked up by a rescue launch after an attempt was made to extinguish the flames. The fire spread to the fuel tanks and she exploded and sank

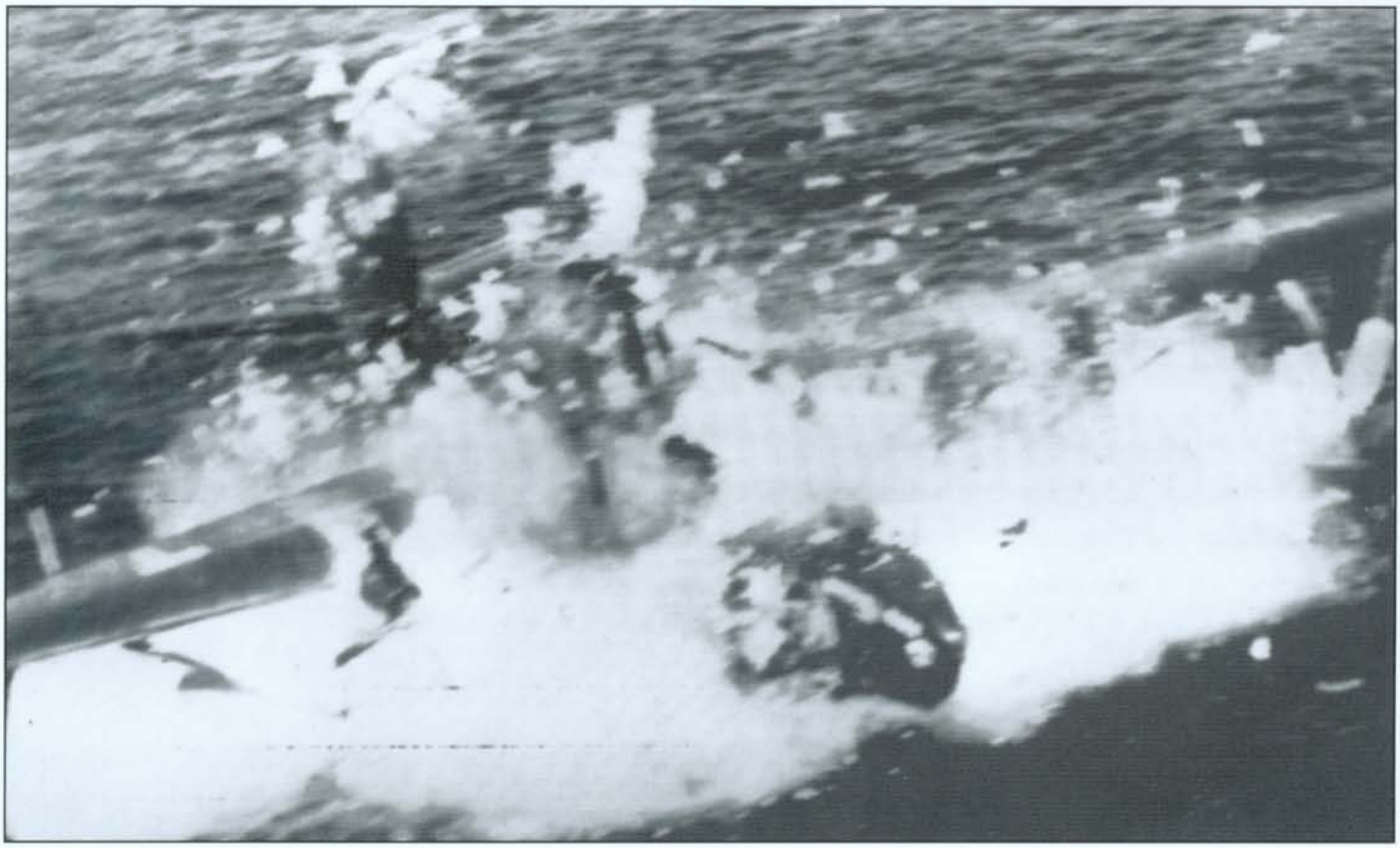
At right, the Marshall Mars on 23 October 1948 at NAS Alameda during an open house. Wooden steps have been built for visitors to enter from one side and exit from the other. (Smalley via Swisher) Below, 76822 in its wooden dock where it is being loaded for its record flight of 301 passengers from CVG-5 and 7 crew members. Bottom, the 301 men pose on the dock and on the wings of the Marshall Mars on 19 May 1949. (National Archives)


822



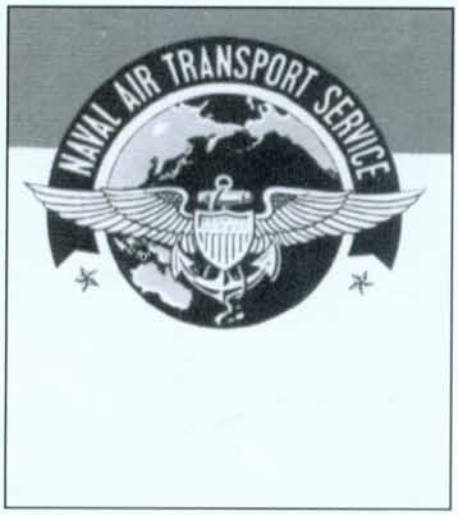


At left top, the rescue boat crew attempts to put out the fire in the number three engine with fire extinguishers. At left bottom, the fire rescue boat backs away as the intensity of the fire increases and the crew continues to send streams of water into the engine. Above, fire has spread throughout the wing structure and forward fuselage. Below, the Hawaii Mars explodes and sinks. (via Patrick Martin and Stan Piet)



THE HAWAII MARS, BUNO 76823

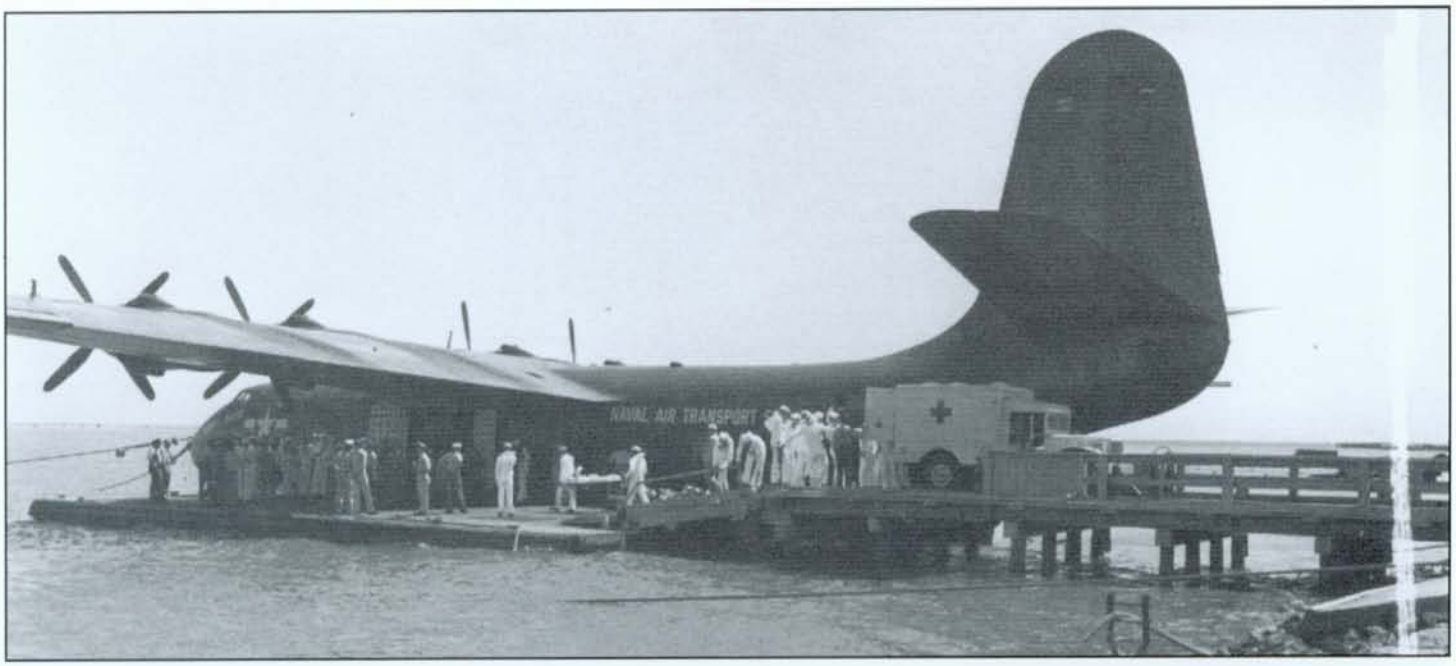
Above, the Hawaii Mars unloads stretcher cases at NAS Alameda. Note observation bubbles on each side of the fuselage tail. (National Archives) Below, the Hawaii Mars on a pre-delivery test run at the Middle River Plant. (Combat Models)



Above, original Naval Air Transport Service insignia.

76823 was the last JRM-1 delivered and it was christened the Hawaii Mars as a replacement for the original Hawaii Mars, which was lost on 5 August 1945.

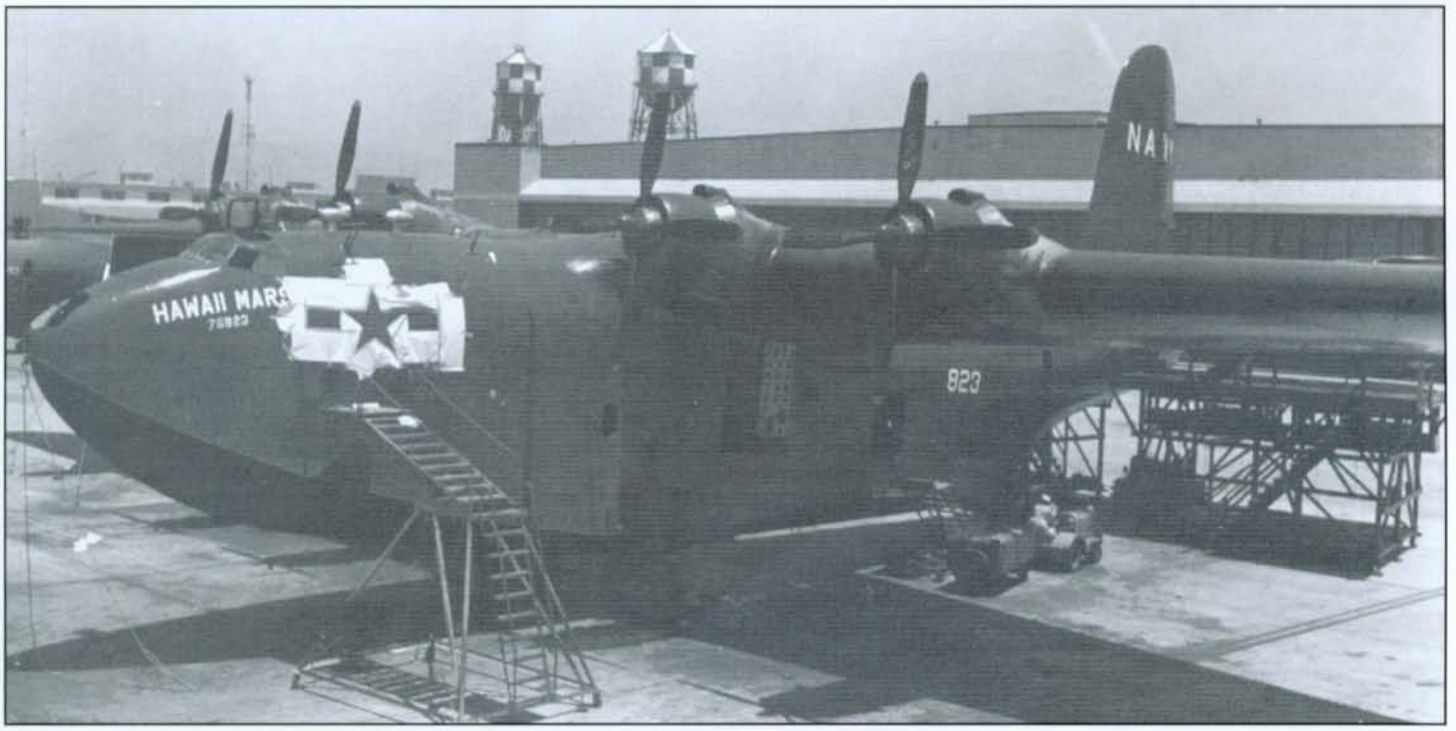
In April 1946, shortly after delivery to VR-2, the Hawaii Mars hauled a record payload of 35,000 pounds to Honolulu. Upon landing, the ship was reconfigured into an air ambulance and launched for a return flight to Alameda eight hours later. 100 patients were evacuated from Aiea Hospital along with 20 medical attendants. These two flights set three records in a 48 hour period. These were: heaviest payload, most litter patients, and most passengers.

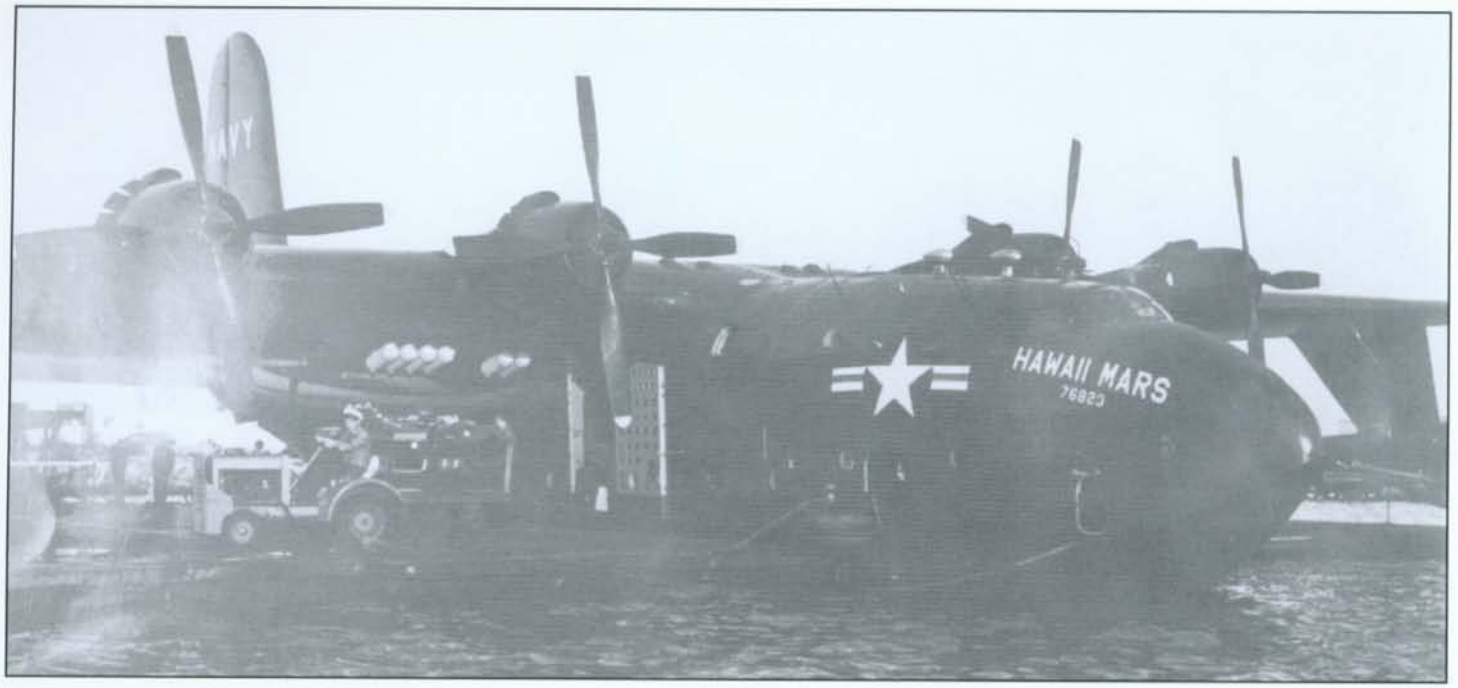


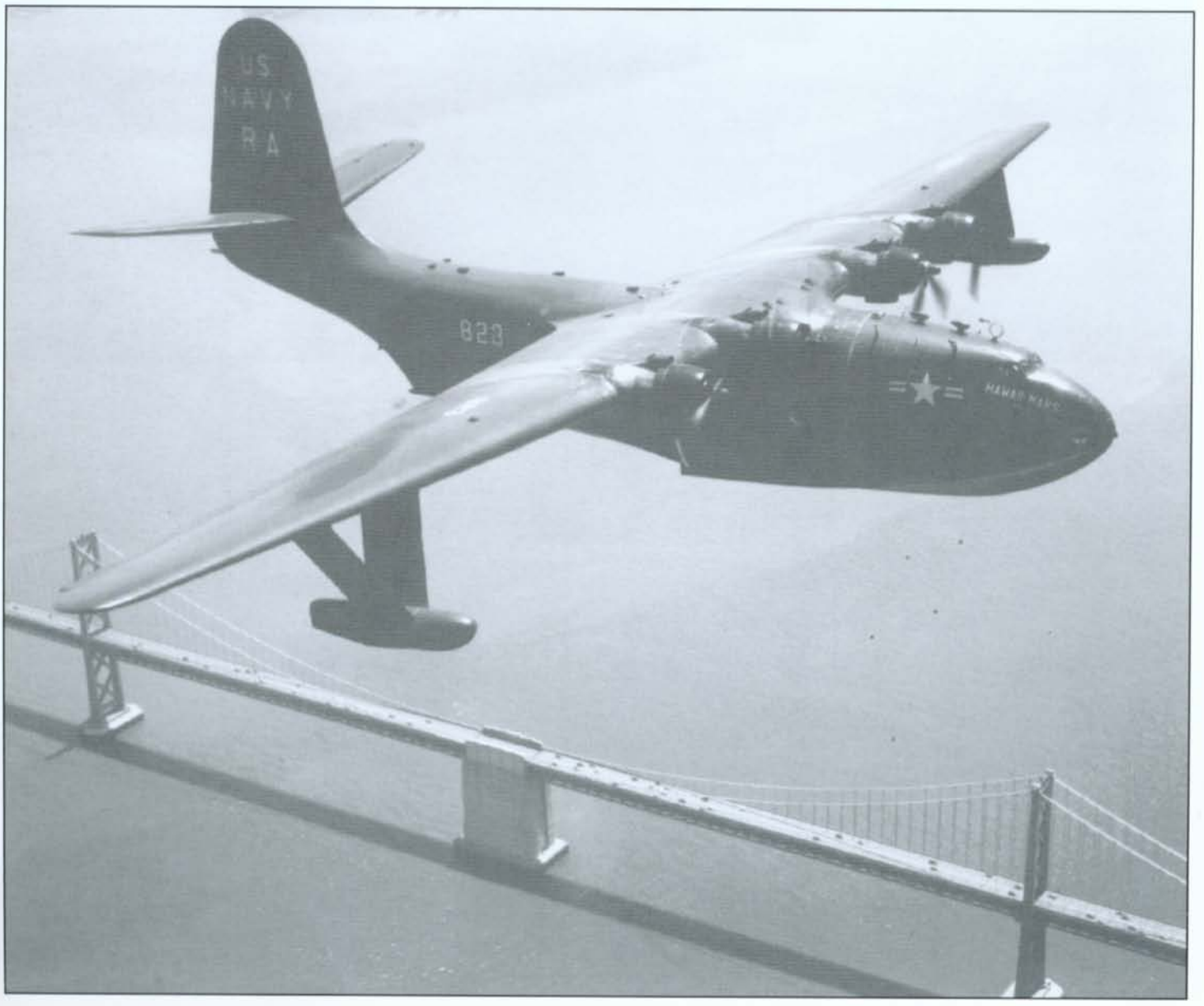
Above and below, the Hawaii Mars is being loaded with 100 evacuees from Aiea Hospital in April 1946. The flight from Honolulu to Alameda set a record for litter patients and one for passengers at 120 when the medical attendants were added in. Note the cameraman on the wing photographing one of the pilots, while another pilot watches from the upper hatch. (National Archives)

Above and below, the Hawaii Mars with the Naval Air Transport Service insignia added to the nose on 22 August 1947. Large portions of the hull appear to have been reskinned in these photos. The small white lettering on the tail is NAVY on the top line and the BuNo 76823 on the bottom line. (Martin via Stan Piet)

Above, Hawaii Mars with NATS added to the tail conducts a JATO takeoff in San Francisco Bay. (SDAM) Below, the Hawaii Mars on 10 April 1948 during a major overhaul at NAS Alameda. Bottom, on 18 June 1948, finishing touches are being put on the Hawaii Mars after its overhaul. (Martin via Stan Piet)




HAWAII MARS
76823


US
NAVY
RA
823

At left top, cargo is being loaded on the JATO-equipped Hawaii Mars. (SDAM) At left bottom, the Hawaii Mars overflys San Francisco Bay on 20 June 1950 with VR-2's RA tail code. (Martin via Stan Piet)
Above, 76823 in its wooden dock off of NAS Alameda on 23 October 1948. (Smalley via Swisher) At right, the Hawaii Mars anchored off Alameda is taking passengers via whaleboat. (National Archives) Below, the Hawaii Mars arrives in San Francisco Bay with Company D 13th Infantry Battalion USMC aboard on 18 June 1950. (National Archives) Bottom, 76823 in retirement at Alameda on 13 June 1959. (Smalley via Swisher)

THE JRM-2 CAROLINE MARS, BUNO 76824

	JRM-1	JRM-2
POWER PLANT	4, R3350-18	4, R4360-4T
PROPELLERS	15.2' CURTISS ELECTRIC	16.8' CURTISS ELECTRIC
HORSEPOWER	2,400	3,000
FUEL	13,220 GALLONS	13,220 GALLONS
OIL	520 GALLONS	520 GALLONS
MAX SPEED	222 MPH	238 MPH
CRUISE SPEED	158 MPH	173 MPH
RATE OF CLIMB	633 FPM	652 FPM
SERVICE CEILING	17,OOO'	17,670'
LANDING SPEED	98 MPH	100 MPH
LENGTH	120'3"	120'3"
HEIGHT	44'7"	44'7"
SPAN	200'	200'
WING AREA	3,683 SQFT	3,683 SQFT
HULL BEAM	13.5'	13.5'
HULL DRAFT	5.5'	5.5'
HULL HEIGHT	20.5'	20.5'
CREW	11	11
GROSS WEIGHT	145,000 LBS	165,000 LBS

The last Martin Mars built, the JRM-2 Caroline Mars was delivered in July 1947. This aircraft was much more capable than its sister-ships because of its 3,000 hp Pratt and Whitney R-4360-4T engines. The gross weight increased by 20,000 pounds to 165,000 pounds, the maximum speed increased to 238 mph, the cruise speed increased to 173 mph, the rate of climb increased to 652 fpm and the range increased by 950 miles to 6,750 miles.

Below, the Caroline Mars is ice-locked in its wooden dock at the Naval Air Test Center, Patuxent River, Md., in the winter of 1947. (National Archives)

After construction and initial flight testing at Martin, the Caroline Mars was assigned to the Naval Air Test Center (NATC) at Patuxent River, Md. The lone JRM-2 completed flight test work at Pax River in May 1948, and was ferried to NAS Alameda for service with VR-2 on 10 May. The aircraft was transferred with NATC markings still intact and was operated with these markings until July when the Caroline Mars was stripped and repainted in VR-2 markings.

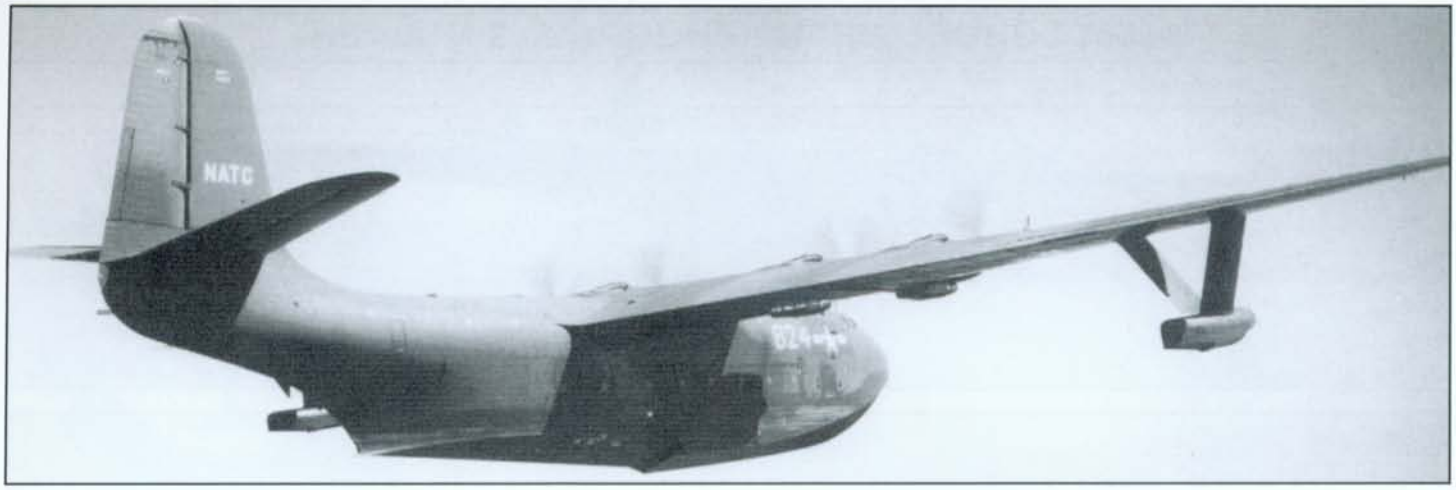
On 25 August 1948, the repainted Caroline Mars flew from Alameda to Honolulu in twelve hours and three minutes. The flight was made to position the JRM-2 for a scheduled world

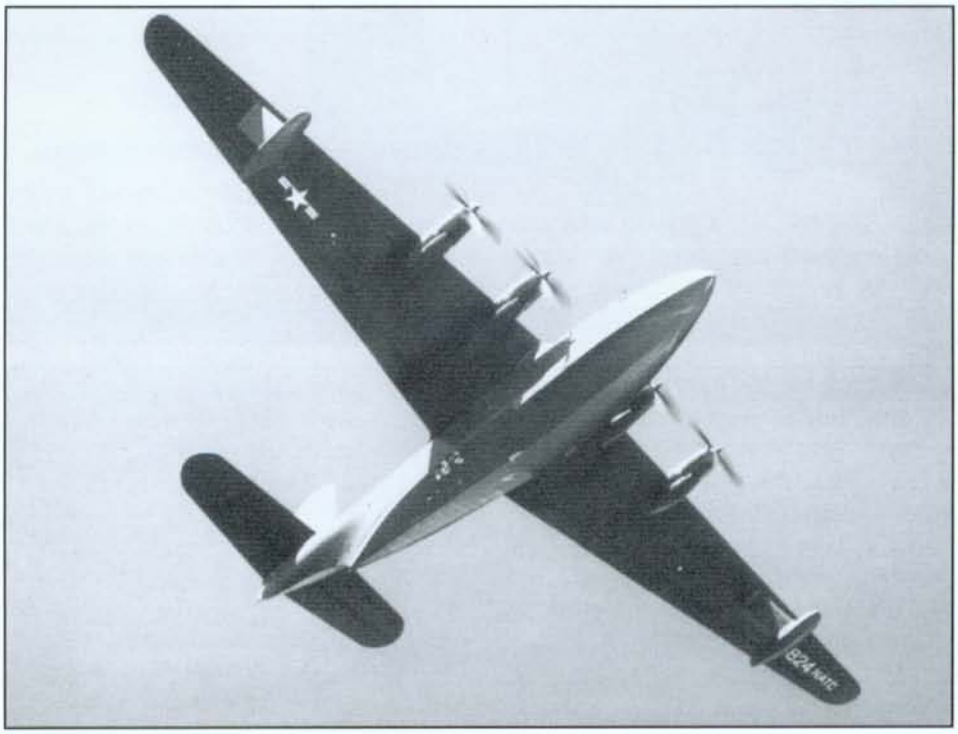
At right top, 76824 weighs anchor at Patuxent River on 10 May 1948 for its ferry flight to NAS Alameda. At right middle, two views of the Caroline Mars takeoff run on 10 May. Note the longer engine nacelles of the Pratt & Whitney R-4360s. (National Archives) At right bottom, the Caroline Mars docked at Alameda on 27 May. (Martin via Stan Piet)

NATC
824

NATC

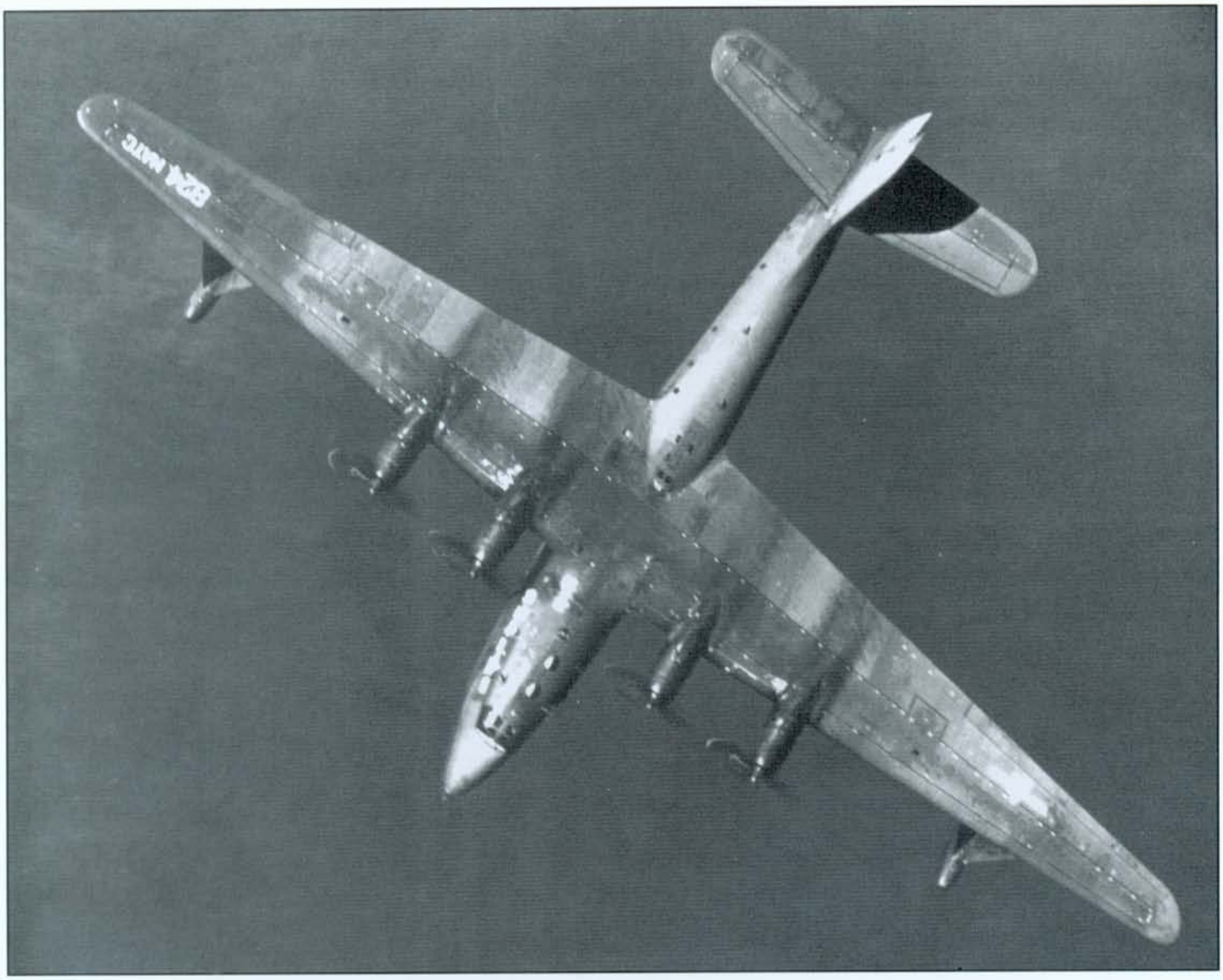
824

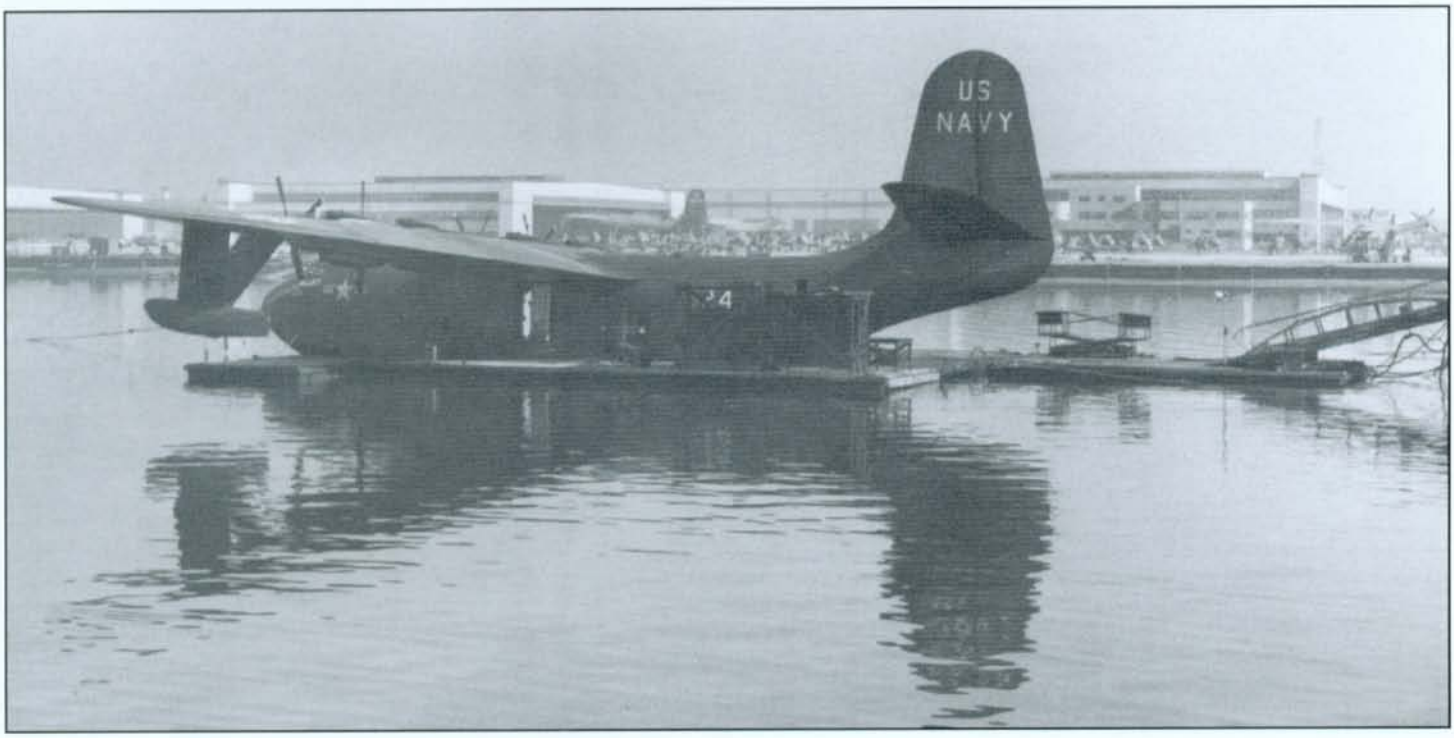




record flight. On 27 August, the giant plane departed Honolulu for its record non-stop flight to Chicago. The flight broke all existing seaplane records for distance, covering the 4,748 statute miles in twenty-four hours and twelve minutes. She arrived at Chicago on 28 August with 42 people and 14,000 pounds of payload on board. The original purpose of the flight was to be the christening of the Caroline Mars by Mrs. Fred W. Lester, mother of Congressional

The three views on this page and the top photo on page 57 were taken during the ferry flight to Alameda. Note the extremely weathered condition of the paint and the location of the upper and lower wing codes. (National Archives) At right bottom, the repainted Caroline Mars at its dock at NAS Alameda on 20 August 1948. (National Archives)




US
NAVY

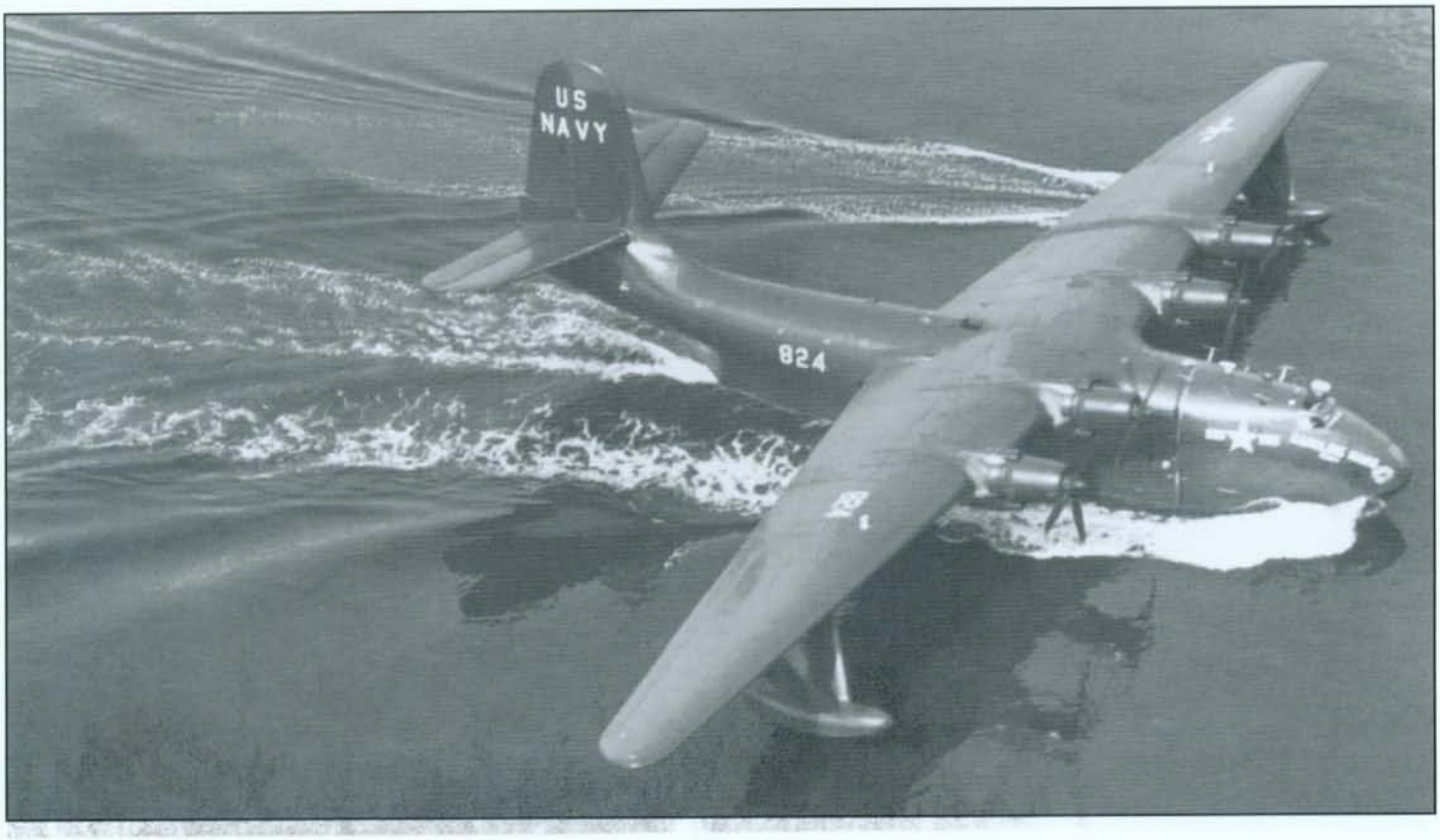
Above, the JRM-2 awaits its christening ceremonies at Chicago in the early hours of 8-27-48. (via Clay Jansson) Below, Mrs. Fred W. Lester christens the Caroline Mars. The anchor boom and anchor have been installed in the open forward fuselage hatch. The scroll which reads FLEET LOGISTIC SUPPORT WINGS has been painted over the wording NAVAL AIR TRANSPORT SERVICE. (Martin via Stan Piet)

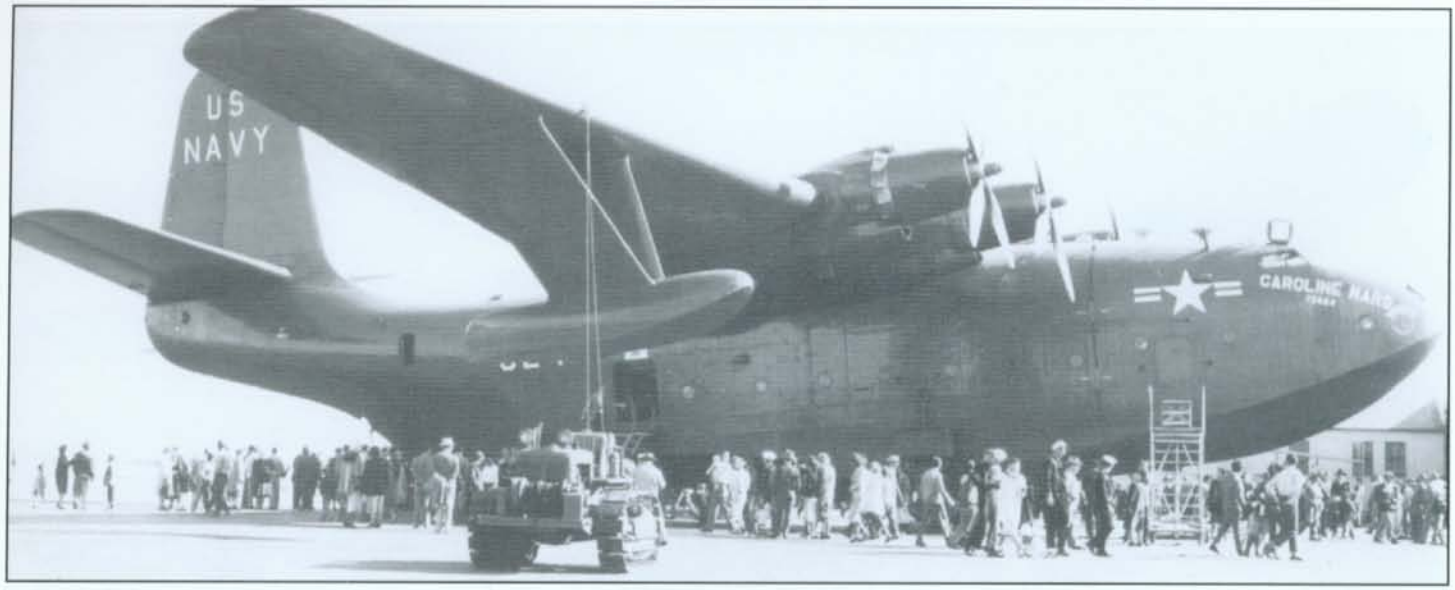
Medal of Honor winner Fred Lester who died in the fight for Okinawa.

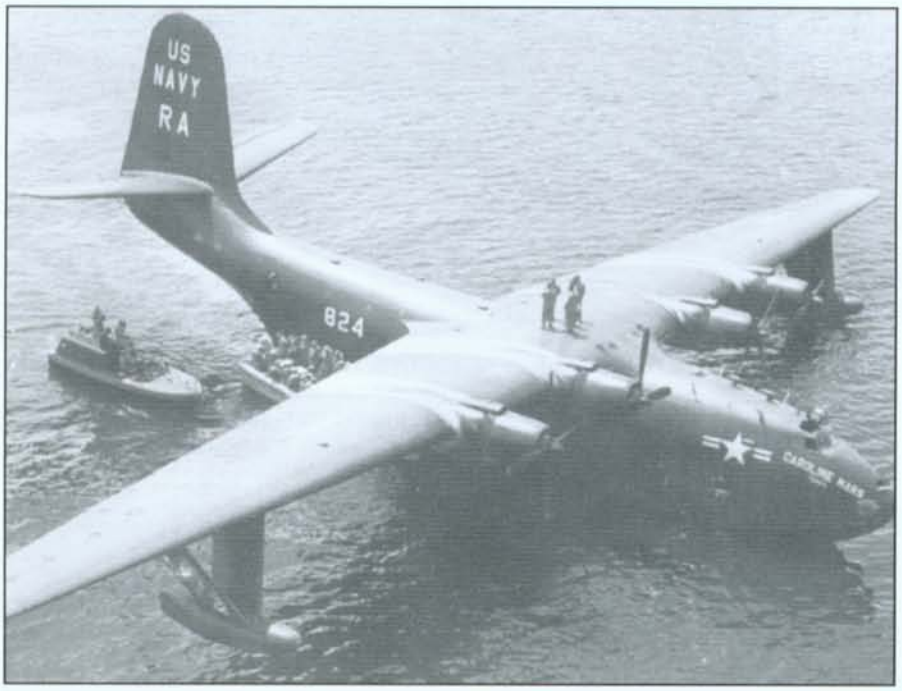
Then on 4 September 1948 the

Caroline Mars lifted a record payload of 38,282 pounds on a 390 mile flight from Patuxent River to Cleveland Ohio. On 7 September she took off from Cleveland to her home port at NAS Alameda with a record cargo load of 39,500 pounds.

Above, 76824 in-route to the Cleveland Air Show with record 38,282 pound payload on 9-5-48. Below, 76820 leaves Pax River for Cleveland. (USN)







Above, open house aboard the Caroline Mars. A tow tractor is being used as a tiedown for the aircraft. (via Menard) At left and below, the Caroline Mars in 1950, with VR-2's "RA" tail code added to the vertical fin, off-loads passengers while anchored off NAS Alameda. (USN)

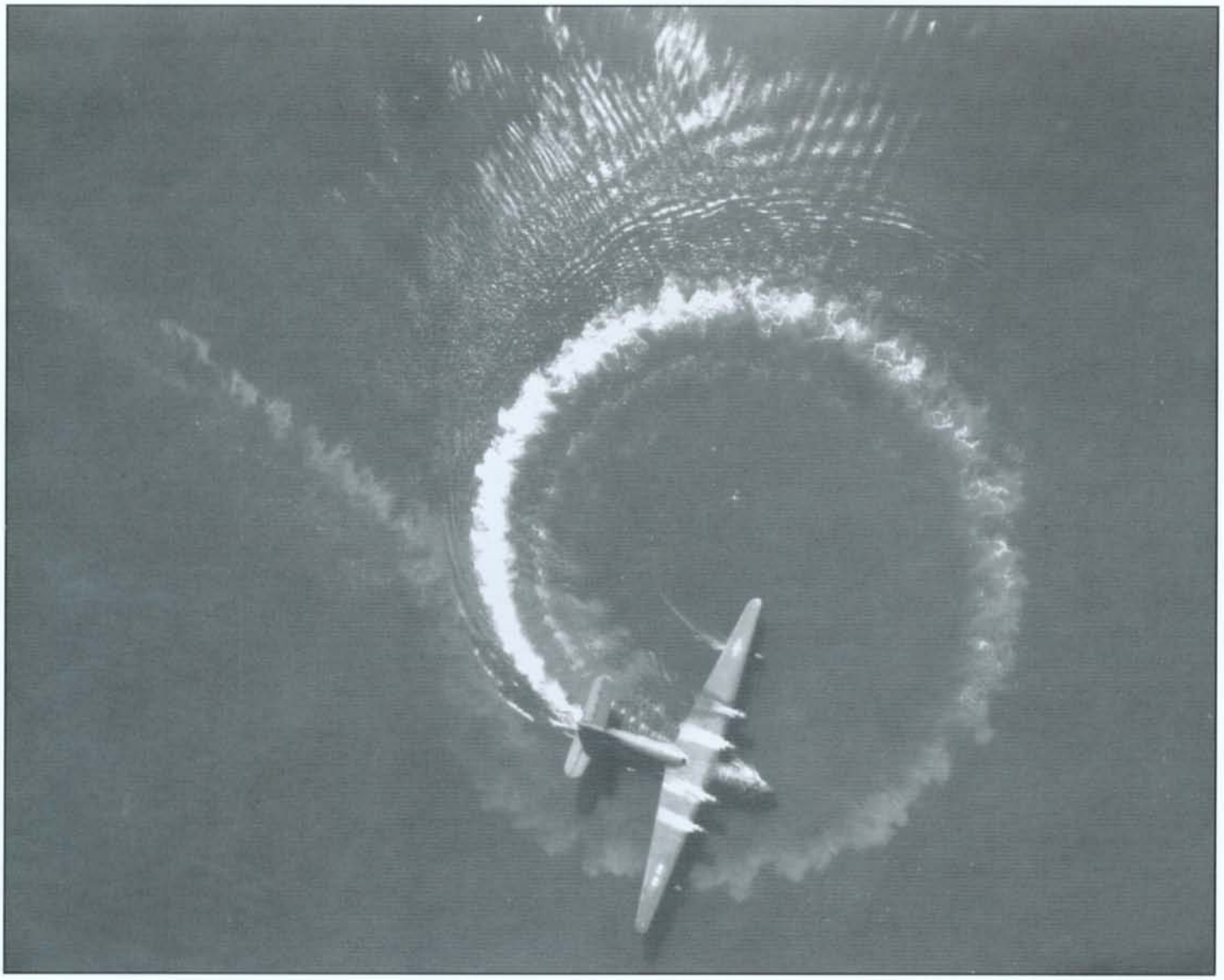
Shortly after the war a Mars route was set up from Alameda to Saipan. There were eight scheduled flights a month on this arduous route. The route consisted of five long hops. The first leg was 2,104 nautical miles from Alameda to Honolulu. From there, a 1,973 nautical mile flight to Majuro in the Marshalls, followed by a 1,560 nautical mile trip to Saipan. The return flight was 1,443 nautical miles to Sangley Point Manila, followed by the return trip to Honolulu and then Alameda.

At the end of the first year of JRM-1

operations, RADM J. W. Reeves, Jr., CO of NATS, said of the Mars in an official memorandum that they carried 3.5 to 4 times as much cargo as the largest landbased aircraft used on the Alameda to Honolulu run, in only 3.5 hour greater time. The JRMs, he said, used 30% less fuel per ton mile than any other transport aircraft then in existence, while having a useful load (fuel, crew, passengers, cargo) of 49% of the gross weight -- or 10% higher than any other landbased transport.

In a speech on 9 August 1955, RADM James S. Russell, then Chief of the Bureau of Aeronautics, stated:

Above, the Caroline Mars with weathered paint on the tail sits on an unknown river. (via Lionel Paul) Below, the Caroline Mars demonstrates its tight water turning ability. (National Archives)



"The Martin JRM Mars seaplane on the Alameda to Honolulu route has compared favorably cost-wise with its landplane competitor of the same vintage, the Douglas DC-4, or Skymaster. A survey of costs per ton mile at one time indicated that the Mars was more economical to operate by 28% than the Skymaster on the same route. Similarly, Mars transportation was even more economical compared to commercial carriers on the same route by a saving of 51%."

During the years 1946 through 1949, VR-2 flew its Mars aircraft a total of 32,997 hours, carrying 76,403 passengers for a total of 179,405,750 passenger-miles flown. For the period of 1950 through 1956 the Mars aircraft carried 108,198 passengers, 5,488.3 cargo tons, 1,495.1 tons of mail, on 1,940 roundtrips. Each of the Mars seaplanes remained in the water for six to eight months at a time, except when on a trans-Pacific journey. The "Big Four", as the remaining JRM were called, were retired in 1956, and were put into outside storage at NAS Alameda until being sold for scrap in 1959.

OPERATING STATISTICS

OPERATING RECORDS FOR THE FOUR JRMs KNOWN AS THE "BIG FOUR"

AIRCRAFT	DELIVERED	RETIRED	MONTHS	FLIGHT TIME	HRS/DAY
Philippine JRM-1	6-26-46	5-07-56	118	18,661.8 hrs.	5.3
Marianas JRM-1	2-28-46	8-31-56	125	19,654.6 hrs.	5.2
Hawaii JRM-1	4-23-46	8-16-56	123	20,038.2 hrs.	5.4
Caroline JRM-2	May 48	7-27-56	95	10,116.8 hrs.	3.2

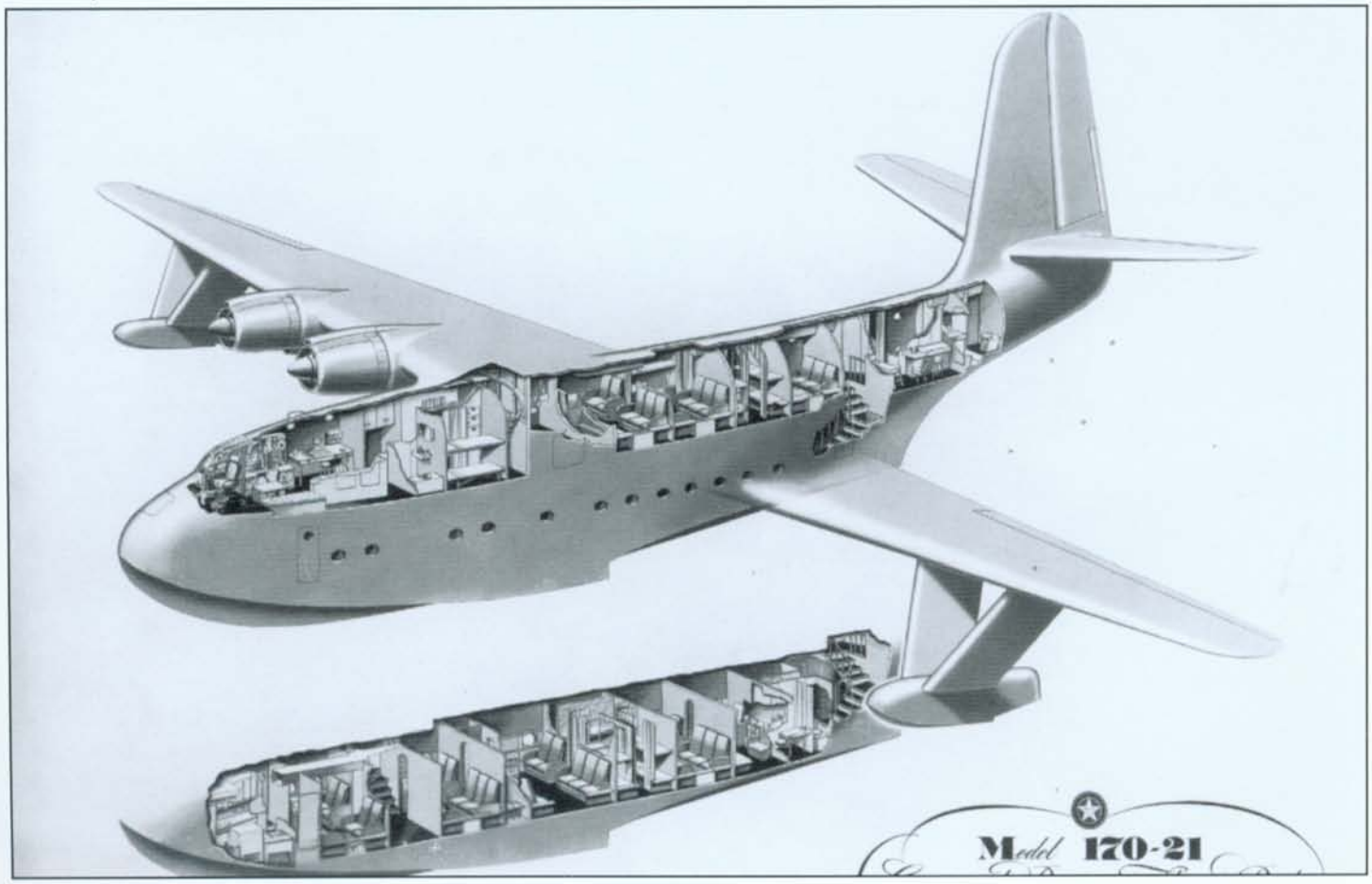
OPERATING STATISTICS FOR THE "BIG FOUR" 1950 THROUGH 1956

YEAR	PASSENGERS	CARGO TONS	MAIL TONS	ROUNDTRIPS
1950	8,188	892.2	154.3	262
1951	19,348	1,329.1	206.3	331
1952	20,340	1,101.8	274.3	453
1953	24,283	1,226.3	199.7	437
1954	12,877	506.9	300.6	175
1955	14,975	917.1	237.4	197
1956	8,187	314.9	122.5	85
Totals	108,198	5,488.3	1,495.1	1,940

MARTIN MARS, DC6-A AND STRATOFREIGHTER COMPARISON-1948

WEIGHT IN LBS	JRM-3 MARS	DC6-A	STRATOFREIGHTER
maximum take-off	175,000	100,000	142,500
operating empty	90,674	49,696	75,430
maximum landing	175,000	85,000	124,000

Below, 1-7-44 Martin proposal for a civilian airliner version of the Mars designated Model 170-21. It was designed around the Pratt & Whitney R-4360-4 engine. Unfortunately, Martin was unable to interest any commercial airlines in the concept. (Martin via Stan Piet)



THE JRM-3 AND FOREST INDUSTRIES FLYING TANKERS (FIFT)

During the mid-1950s, the forest industry in British Columbia was particularly hard hit by a series of disastrous forest fires. An emergency meeting of all of the lumber companies was called in 1958 to deal with the problem. A Fire Protection Committee was formed as a result of this meeting to evaluate existing systems and to draw up recommendations for improvements. The committee recommended expanding the usage of aircraft as aerial tankers to fight the fires. However, they also pointed out the inadequacy of most types then in use.

Dan McIvor was the senior pilot at Mac Blo's, the largest lumber company, and a committee member. His view was that as useful as the single-engined Beavers, Otters, Avengers and the twin-engined Cansos were, they simply lacked the speed, range, and volume needed to successfully kill a fire. McIvor believed that only a large flying boat would be suitable for such a job. Such an aircraft would utilize the plentiful lakes in the region and drop down and scoop up a large enough volume of water to be able to penetrate the forest canopy and smother a fire.

McIvor started a search for a suitable aircraft, but was thwarted by the virtual retirement of most all large seaplanes. In the late spring of 1959, a friend by the name of Bob Morin informed Dan that the US Navy had its fleet of Mars flying boats on the salvage block. Dan's immediate call to the officer in charge of the sale was a sobering one. The officer told Dan that the bids were closed, but he would advise Dan of who the successful bidder was. The successful bid of $23,650 was tendered by Hugo Forrester of the Mars Metals Company. Dan contacted Mr. Forrester and discovered he would be willing to part with his new acquisitions for about $25,000 each. With this information Dan was able to convince his employer into funding an inspection trip to California, accompanied by two Fairey engineers and a management representative from Mac Blo's.

Above, the Philippine Mars at Victoria, British Columbia in 1962. The aircraft was registered CF-LYM and had not yet been converted into a water tanker. (via S. Nicolau)

When the inspection team returned to Canada, McIvor drew up a brief report which recommended the purchase of the aircraft and submitted it to the company. The report was reviewed and ultimately turned down. Crushed by this initial rejection, McIvor went to work on a proper report with the aid of a company accountant. After ten long nights the new report was finished and submitted once more.

This whole process was taking up valuable time, time the scrap dealer didn't have. The terms of the contract required that the first aircraft be removed from NAS Alameda within 90 days, the second 30 days thereafter, the third 30 after that and the last 30 days later. McIvor was able to convince Mr. Forrester to tow the first aircraft across the bay to the San Francisco municipal airport. Shortly thereafter, Dan was instructed to proceed with the deal.

McIvor's proposal paid Mars Metals $100,000 for the four aircraft and set aside another $100,000 for ferry costs and conversion costs for one test aircraft. He further estimated that it would cost $60,000 a year to maintain each aircraft and pay for the crew. This figure did not include an estimated $280.00 per hour charge for gas and oil.

The initial purchase included some spare parts, but no engines or propellers. Shortly thereafter, some engines were available, but McIvor was only authorized to purchase six, which he successfully bid on for $135.00 each. At a later date another twenty-nine engines were purchased, but from a scrap dealer at $600.00

During his search, McIvor drew up the comparative data listed in the chart below on all the possible choices.

TYPE	LOADED WEIGHT	WATER CAPACITY
MARTIN MARS	148,500 lbs.	7,000 gallons
SHORT SHEPHERD	130,000 lbs.	6,000 gallons
BOEING CLIPPER	84,000 lbs.	3,500 gallons
CONSOLIDATED CORONADO	66,000 lbs.	3,000 gallons
SHORT SUNDERLAND	58,000 lbs.	2,500 gallons
SHORT "C" CLASS	40,500 lbs.	2,000 gallons
CONSOLIDATED CATALINA	34,000 lbs.	1,500 gallons

CONDITION OF "BIG FOUR" AT TIME OF SALE

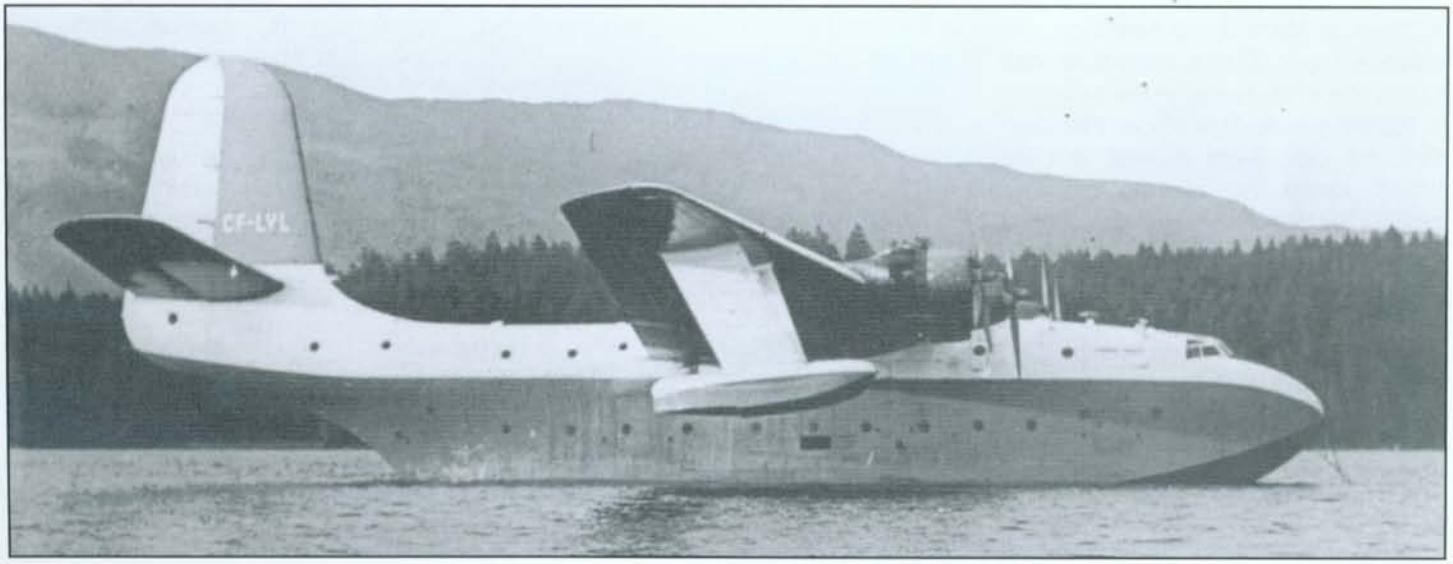
PHILIPPINE MARS (76820)				
AIRFRAME:	Flight hours since new		18,661.8	
	Flight hours since last overhaul		1,958.9	
ENGINES:	1	2	3	4
Total time	2,637.1	1,885.4	1,815.5	1,866.8
Time since overhaul	789.9	409.7	453.4	737.6
PROPELLERS:	1	2	3	4
Total time	5,459.4	4,531.3	3,704.8	7,590.3
Time since overhaul	1,638.8	1,245.0	945.9	732.9
MARIANAS MARS (76821)				
AIRFRAME:	Flight hours since new		19,654.6	
	Flight hours since last overhaul		3,705.9	
ENGINES:	1	2	3	4
Total time	1,239.0	2,984.2	1,711.3	2,497.0
Time since overhaul	623.9	437.1	435.0	63.3
PROPELLERS:	1	2	3	4
Total time	7,643.9	8,933.6	4,034.7	6,241.4
Time since overhaul	354.3	1,237.0	833.5	589.3
HAWAII MARS (76823)				
AIRFRAME:	Flight hours since new		20,038.2	
	Flight hours since last overhaul		2,390.4	
ENGINES:	1	2	3	4
Total time	1,943.2	1,969.6	2,501.8	1,132.7
Time since overhaul	228.6	382.4	519.8	355.8
PROPELLERS:	1	2	3	4
Total time	4,913.9	6,564.2	6,312.0	5,434.5
Time since overhaul	472.2	1,237.4	1,957.7	1,064.0
CAROLINE MARS (76824)				
AIRFRAME:	Flight hours since new		10,116.8	
	Flight hours since last overhaul		2,960.2	
ENGINES:	1	2	3	4
Total time	2,831.9	2,263.5	2,530.8	1,973.1
Time since overhaul	755.9	430.9	774.6	679.1
PROPELLERS:	1	2	3	4
Total time	1,979.3	4,935.8	6,770.8	9,142.0
Time since overhaul	1,349.7	1,670.5	1,644.8	1,315.6

each. Another purchase netted McIvor 5,000 spark plugs at 5 cents each and a number of new cylinder heads at $15.00 each. The purchase of a lifetime followed shortly thereafter. Dan was shown a pile of crated spares that represented the Navy's whole remaining Mars equipment inventory that was 20 feet wide, 10 feet high and 200 feet long. The financially strapped McIvor tendered the ridiculously low offer of $3,200 and secured for FIFT enough spares to guarantee operation of the Mars into the 21st century. A few days later, the Navy gave McIvor its final gift, 43 metal file cabinets filled with everything from hull templates to operational histories.

By the time the Navy retired its fleet of Mars flying boats they had been redesignated JRM-3s. This was because both the JRM-1s and the sole JRM-2 had been re-engined with Wright R-3350-24WA engines and Curtiss electric 16' 8" four-bladed propellers. The two inboard propellers were fitted with reversible pitch devices.

On 8 August 1959, the Marianas Mars lifted up from San Francisco Bay for its ferry flight to Patricia Bay and the conversion crew from Fairey Aviation. The Caroline Mars was fer-

Below, the Hawaii Mars rests on a Canadian lake in 1965. The red and white aircraft carries the Canadian civil registration CF-LYL. (via Jansson)



ried out on 27 August followed by the Philippine Mars on 5 September. The ferry flight of the Philippine Mars turned terrifying off the Oregon coast. A Canadian flight engineer trainee had accidentily cut the fuel to the four engines and the aircraft turned into the proverbial brick. The Navy flight engineer Traxler was off visiting the head, and when everything went quiet he rushed to the flight deck and his panels. After feathering the props, Traxler was able to get the engines restarted in time to avoid an emergency ditching. The final aircraft, the Hawaii Mars, arrived in Canada on 12 September 1959.

Shortly thereafter, the Caroline Mars was flown to Sproat Lake by McIvor, where it was used until late autumn to train all the ground and flight crews. At this same time the Marianas Mars was hauled ashore by Fairey Aviation for conversion into the prototype fire bomber. After stripping out all the extraneous gear, Fairey installed a single 6,000 gallon fibreglassed Douglas fir plywood tank in the cargo compartment. To obtain water, two retractable probes or scoops were fared-in just aft of the hull step. Finishing touches were new radio equipment and a new red and white paint scheme.

Above, the Caroline Mars on Sproat Lake in 1965. (via Clay Jansson)

The spring of 1960 saw the Marianas Mars at Sproat Lake following its conversion. Shakedown flights and training were the order of the day

Below, the Hawaii Mars on Sproat Lake in October 1985. The red and white aircraft has red engine cowls with the area behind the cowl flaps painted black.. (Gary Vincent)

as the Canadians got used to their new steed. Training continued and tactics were developed. These tactics called for use of a spotter plane to guide the lumbering giants in. The spotter used was the Grumman Goose amphibian. Practice drops proved that the best speed and altitude for a water drop was 100 knots and between 150 to 200 feet.

Just prior to the start of fire season, McIvor had a flight physical. The results proved devastating, as McIvor's eyesight was no longer acceptable to maintain his license. The result was that less experienced captains took over. One such Captain would destroy the Marianas Mars on 23 June 1960 when he disregarded the spotter plane and attacked a fire directly uphill. The pilot, Richman, did not drop his load, but instead started a steep turn away from the mountain. The wing clipped the trees and the aircraft cartwheeled into the mountainside killing the crew of four.

Conversion of the Caroline Mars was rushed forward and McIvor got his license back on appeals. Finally, in 1962 Dan would get the chance to prove the value of these giants. A fire broke out at the base of a steep hill which started at the shore of Cowichan Lake. The fire spread rapidly up the slope, induced by its own forced draft. The Mars arrived before the fire crews could reach the sight and delivered its first load across the top of the advancing fire. She dropped to the lake, recharged her tanks, and hit the base of the conflagration. This was followed by six more drops which finished off the fire in less than one hour. McIvor would repeat his heroic act again two days later at the head of Ramsey Arm. This fire put up a much tougher fight, for it took two hours and twenty-two water drops to extinguish it. But extinguish it the Mars did, and FIFT became an overnight sensation.

The winter of 1962 claimed another Mars, the Caroline. She was tethered on the ramp at Patricia Bay when Hurricane Frieda hit. Frieda tossed the big boat about as if it was a toy, and by morning she laid bent and broken, her flying days ended.

After the storm, Fairey Aviation was directed to immediately start the conversion of the remaining two Mars aircraft. In addition to the large water tank, a ten-foot high torpedo-shaped vessel vertically mounted beside the main water tank was added. This was used to contain Gelgard, a powdered thickening agent which is added to the main tank as it fills with fresh water. The gel aids in compacting the water, retarding evaporation and helps the water to adhere to the tree

Above and below, the Hawaii Mars on Sprout Lake in October 1985. The starboard side below has been stripped of paint except for the tail and wings. (Gary Vincent)

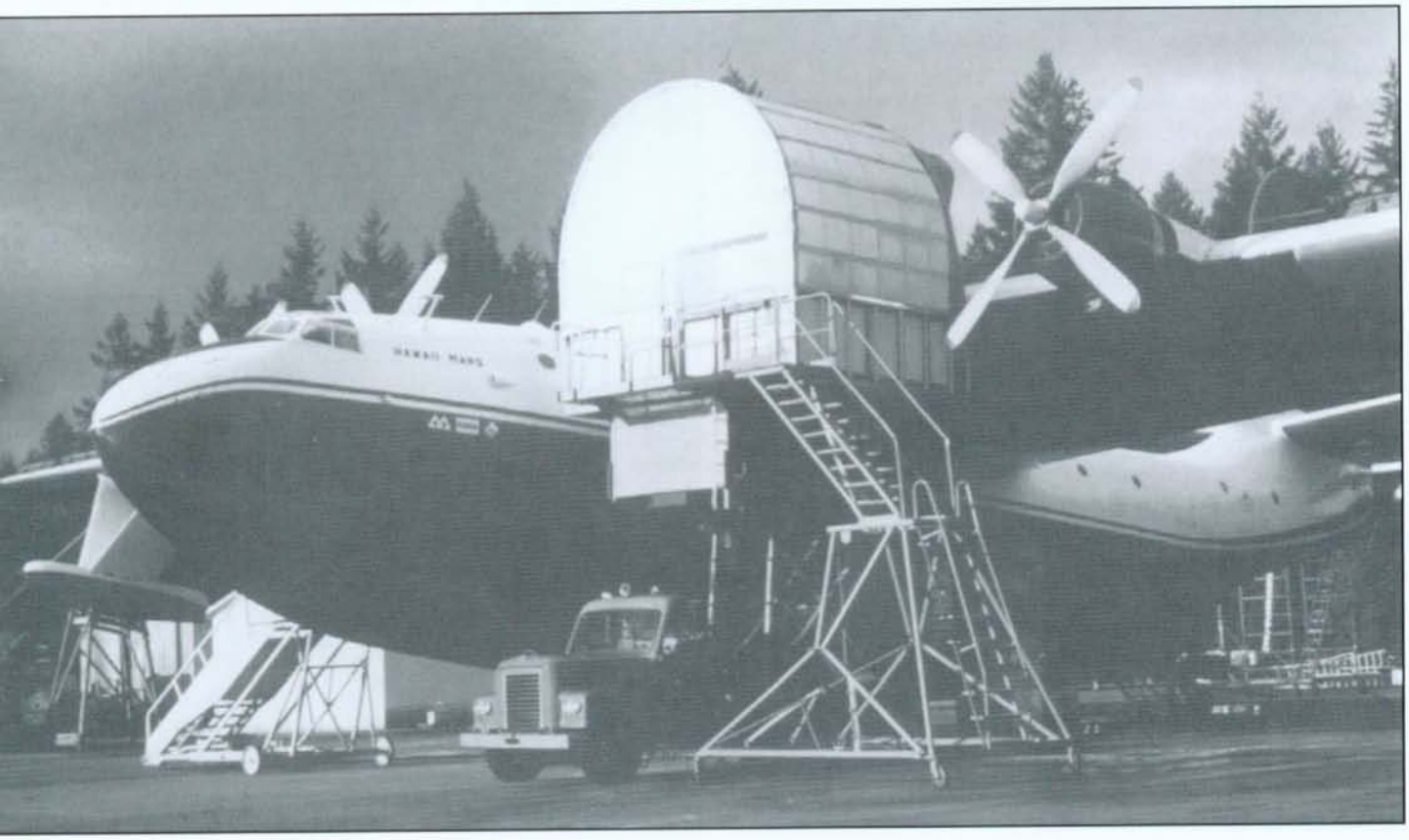
t right, a local fisherman explores the hilippine Mars from his skiff as a FIFT mployee works on the outboard ngine from a wing engine platform hat came with the aircraft. (Gary incent)

unks in a clinging viscous film.

The 1963 fire season started with oth remaining Mars water bombers n service, but with McIvor absent as e had accepted a job with Pacific Western Airways. The rest is history. Both the Hawaii and Philippine Mars ontinue on today fighting fires and heir success has brought about the ontinued construction of the Canadair CL-215 water bomber.

At right, the Philippine Mars in the foreground and the Hawaii Mars in the background await the fire season. (Carol Grant c/o Seawings)

Below, the Hawaii Mars on the ramp at Sprout Lake in December 1993 with its enclosed engine maintenance workstation hoisted into place. Prop blades are medium grey with red tips. (Gary Vincent)

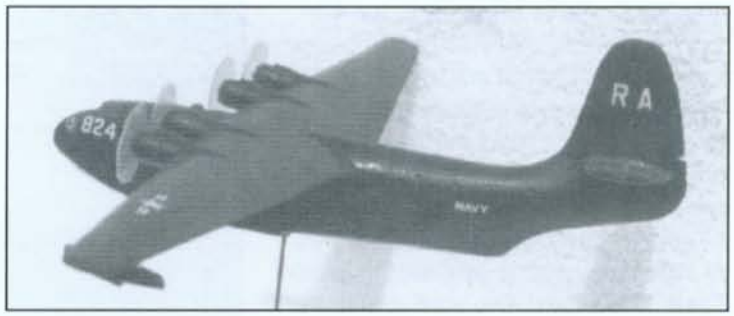


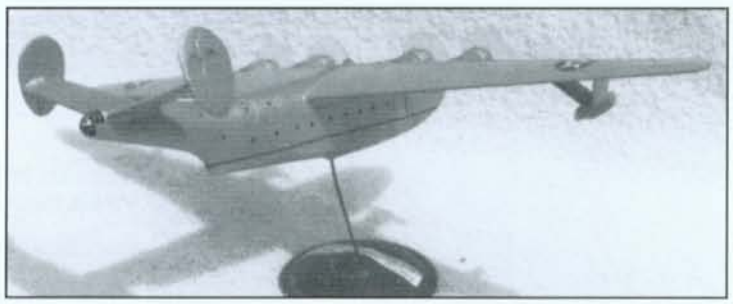
THE HBM 1/200 SCALE RESIGN JRM MARS KIT AND IT'S CONVERSION INTO THE XPB2M-1. BY TOM HEALY

In the little known, but thriving world of 1/200 scale aircraft models, about 1,000 types have been produced. They are produced by the cottage industry, often custom cast to your order. Out of this variety of models, a JRM-1 Mars is currently available from HBM models (Professor Ron Crawford, P.O. Box 23, N. Ferrisburgh, VT., 05743)

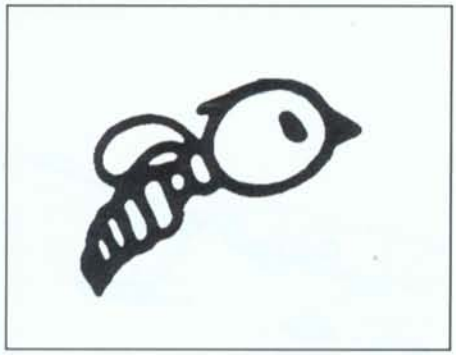
This is a solid epoxy resin model with a 12 inch (200 scale foot) wing span, much like the larger scale resin kits from the Czech Republic. It is supplied as 8 parts; fuselage with integral fin, wing with engine nacelles, 2 horizontal stabilizers, 2 floats with struts, and 2 bracing struts. Decals, props (or discs like I used), and other detail touches are either from the spares box or scratch built. The JRM-1 is essentially out of the "bag". Sand down, or fill any casting imperfections with modeling putty like Green Stuff. Test fit all joints, and sand or file as needed. Glue with an epoxy or super glue and I use the gap filling super glue. Fill any gaps, paint, decal, and display. As modeled my JRM-1 is from VR-2 at NAS Alameda in 1954.

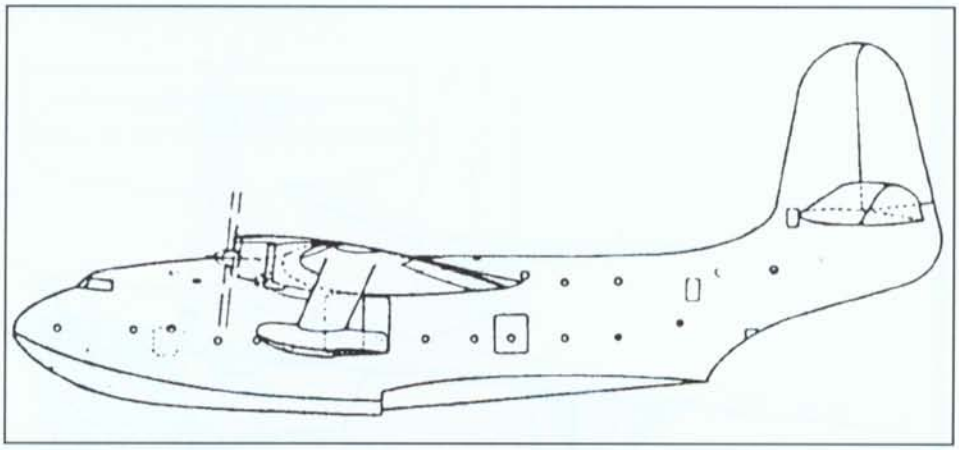
The XPB2M-1 conversion involves replacing the tail unit, and lots of body work on the fuselage. The other parts are OK as is. To start, I enlarged a 3-view of the prototype to 1/200 scale with several passes through a Xerox machine. I then rummaged through my spares box for parts that were close to the correct size for the new tail. I wound up selecting tail parts from an 1/72 Airfix Hudson, but any reasonably sized stock will do. I then ground (with a Moto Tool) and filled with Green Stuff, and sanded. Final filling was with White Stuff, then sanding, and scribing control surface lines which completed the tail. On the fuselage, the nose is a bit shorter and has a large gun turret, the cockpit is a bit lower and slightly forward. I actually sawed the cockpit off my model, and reground the nose to receive it and a spherical nose turret made from sprue. Then the gaps were filled and the nose filed to shape. This took a lot of fiddling to get it to look like the photos. The rear fuselage has to be completely reshaped to take the twin tails and represent the tail turret. Saw off and discard the fin. Rough out the rear fuselage width and profile with pieces of toothpicks attached with super glue. Then fill and file and sand to contour. The rest of the fuselage is correct, except all the windows and hatches are in the wrong place. I filled all the JRM details and scribed noticeable items, like the dorsal and beam turret position cover plates, and hand-made the prominent astrodome at the wing leading edge. Later after completing the basic aluminum / yellow finish, I painted in the other fine details such as windows and wing walks with a 10/0 brush. The last items were some decals and a semi-gloss sealer coat. The final result is a Martin XPB2M-1 as it appeared in 1941 when it was rolled out for tests.



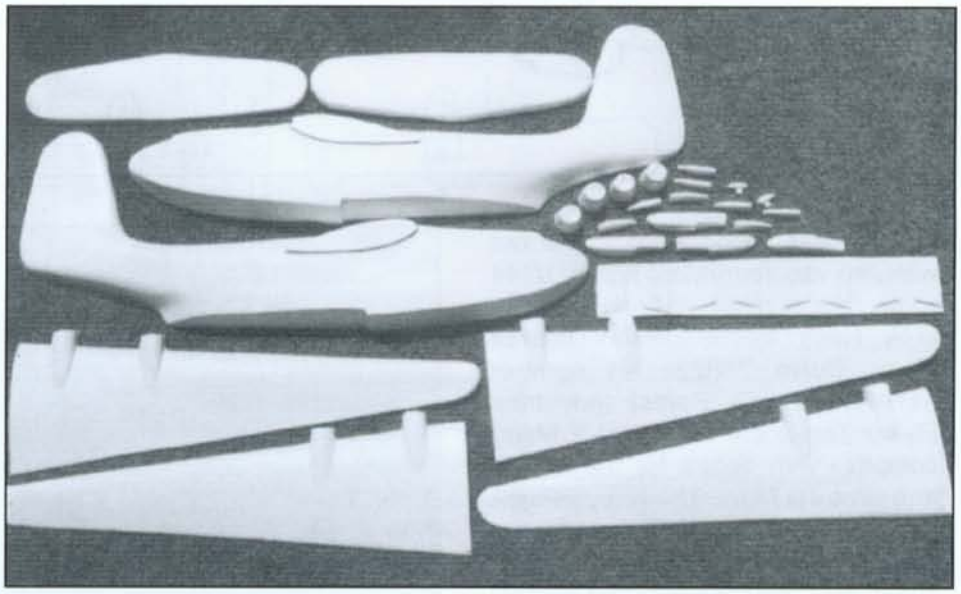


COMBAT MODELS 1/72 SCALE MARTIN JRM-1 MARS KIT



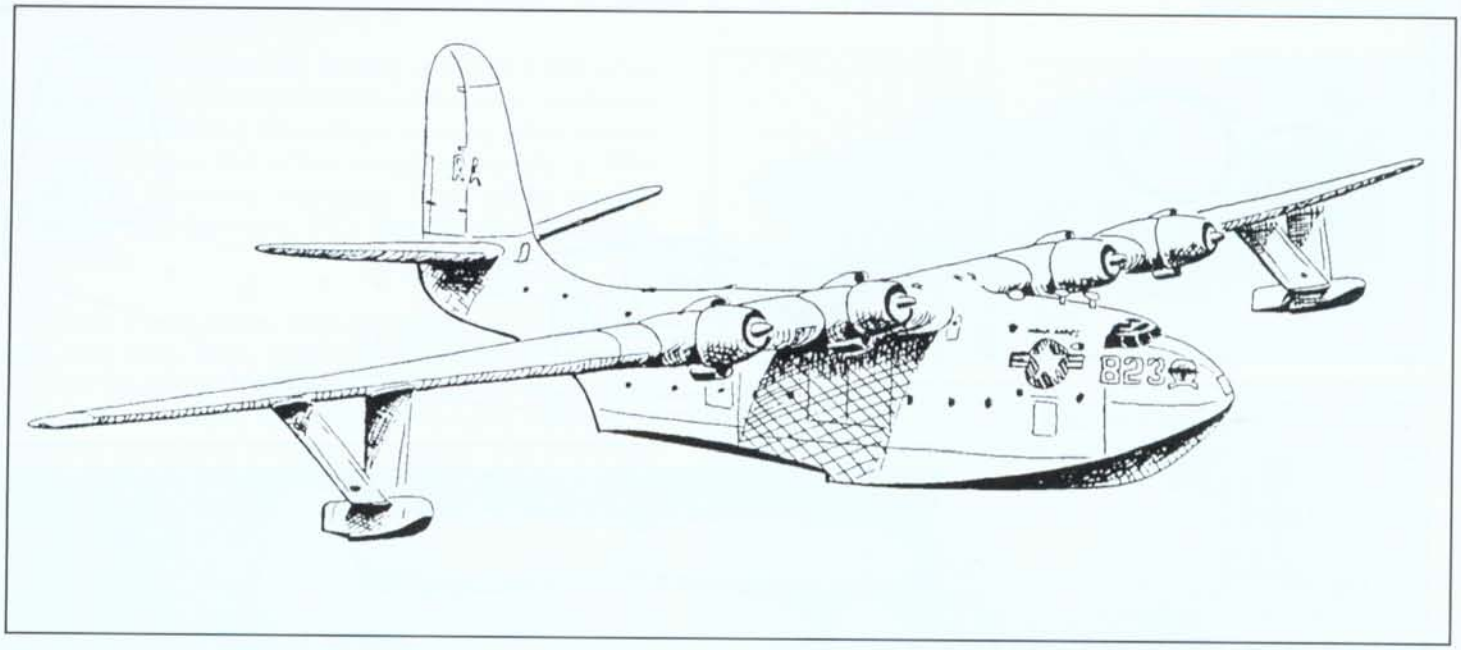


If huge is what you want or if you must maintain fidelity of scale, then Combat Models kit # 72-004 is for you. This 1/72 scale vacuform kit is of the JRM-1, but can easily be made into the JRM-2 by modifying the engine nacelles by lengthening them and building the proper air scoops for the R-4360 engines. The kit is available from John Rucks at Combat Models for $30.95 plus $5.00 postage. John's address is; Combat Models, 400 3rd Street, West Easton, PA. 18042. John provided Naval Fighters with a sample kit and photos of the built model. Additionally John has loaned me many of the photos used in this book.



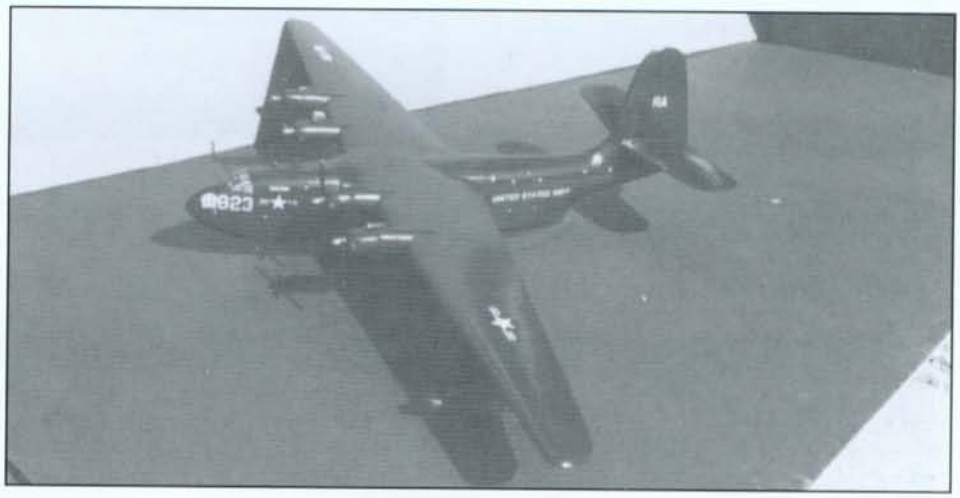
The Mars kit is formed on two large vacuform sheets and comes with a 1/72 scale drawing to use in construction of the model. The two vacuform sheets contain 34 parts as shown at right. No white metal parts, decals, or clear parts are included in the kit. Prior to receiving the photos from Combat Models, I had planned to utilize propellers from the AMT X/YB-35 Flying Wing kit which has just been released on this model. Of course you could use propellers from the Airfix B-29, but the cost of that kit in the United States is far greater than the X/YB-35. Overall the model is reasonably accurate except in one area. The struts for the floats are too short and you must fabricate new ones out the scrap from the two vacuform sheets. The best way to stiffen the fuselage on such a large vacuform model is to cut foam to fill the interior of the kit. With such a large wingspan I would recommend usage of wood doweling to strengthen the wings.

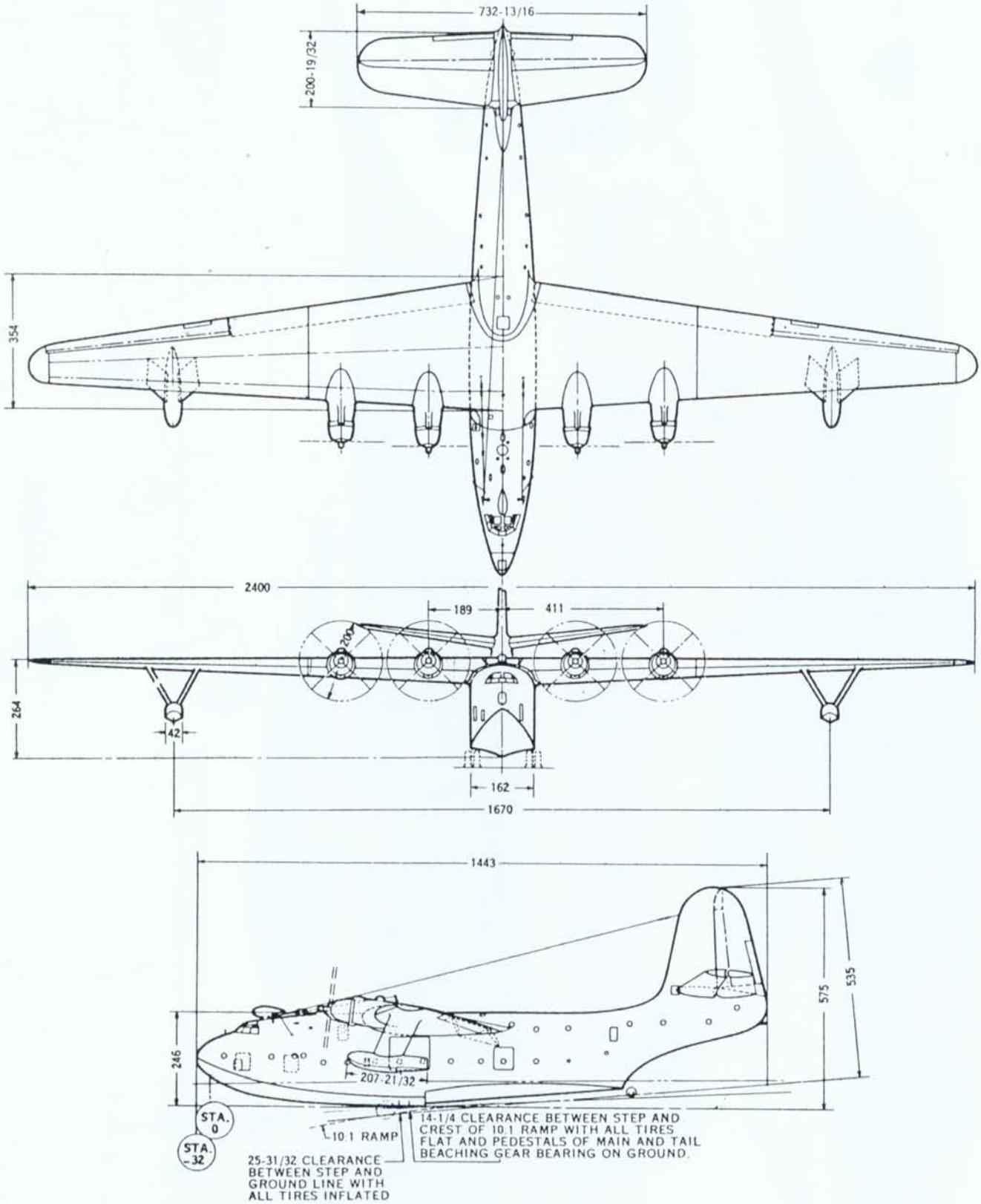
AIR CRAFT MODELS 1/144 SCALE JRM-1 MARS, KIT NUMBER 416



Air Craft Models has come out with two vacuform Mars kits in 1/144 scale. Kit number 416 depicts the U.S. Navy Martin JRM-1 Hawaii Mars, BuNo 76823. Kit number 417represents a Forest Industries Flying Tankers (FIFT) JRM-3 Mars, complete with decals for the Hawaii and Caroline Mars. The Navy version was built for this review and contained construction plans, decal sheet, clear plastic parts, and twenty-six white metal detail parts. The white metal parts included sixteen prop blades, four propeller spinners and hubs, four engine rings, and two radio antennas.

The model is formed of thirty-four vacuform parts made with a heavier than normal styrene for ease of construction. I found the model to be easy to build and to accurate in shape and appearance. I did not use the clear parts, deciding instead to paint on the portholes and cockpit windows. Instead of utilizing the kits propellers, I substituted propellers from the Academy Minicraft B-29A kit, to which I added the metal prop spinners from the Air Craft Models kit. The kit was finished with a can of blue spray paint and the kits decals. The hardest part in building this kit was in fashioning the engine carburetor air and oil cooling intakes.

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200-19/32
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207-21/32
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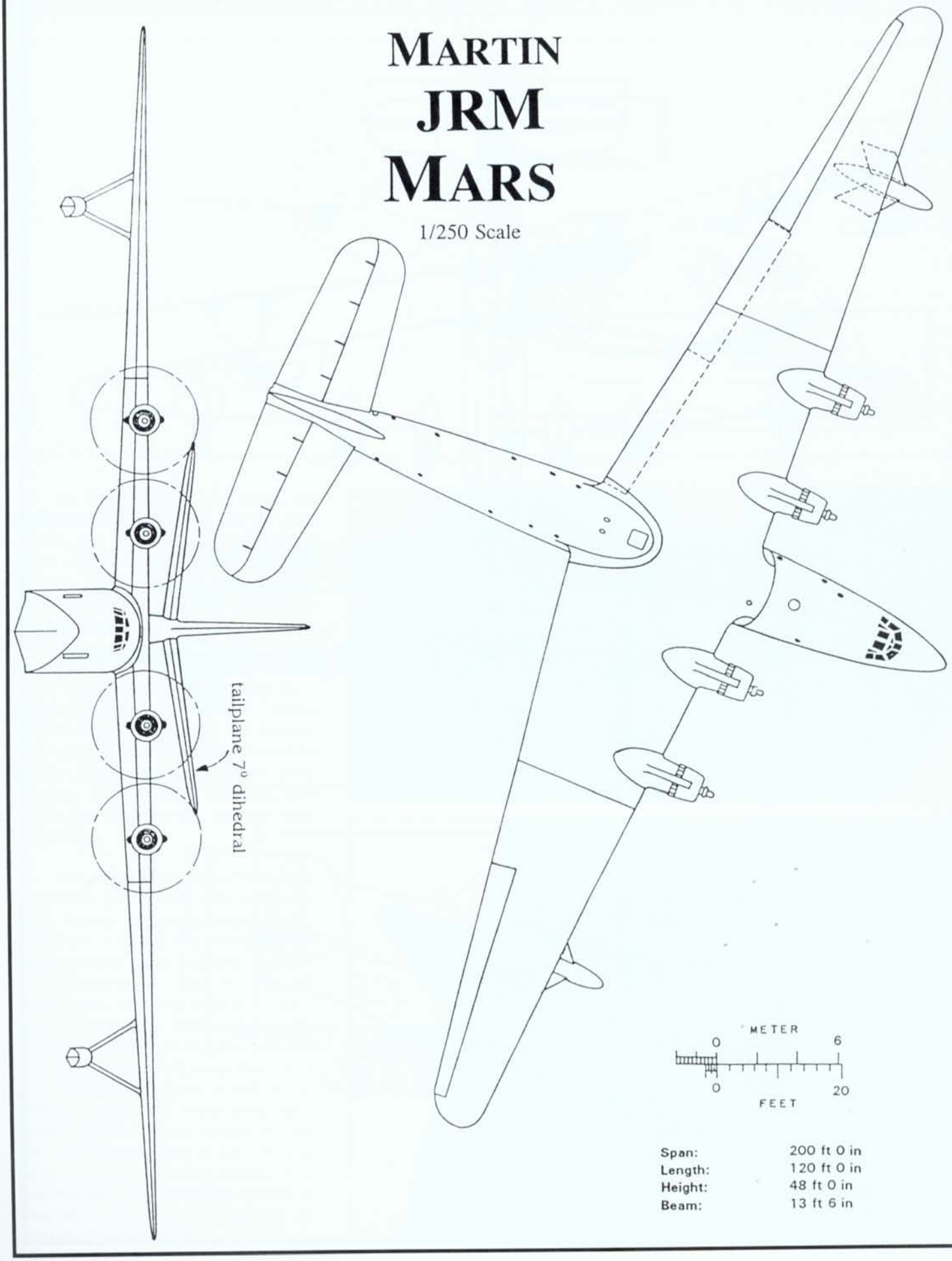
STA. -32
10:1 RAMP
14-1/4 CLEARANCE BETWEEN STEP AND CREST OF 10:1 RAMP WITH ALL TIRES FLAT AND PEDESTALS OF MAIN AND TAIL BEACHING GEAR BEARING ON GROUND.
25-31/32 CLEARANCE BETWEEN STEP AND GROUND LINE WITH ALL TIRES INFLATED

MARTIN JRM MARS

1/250 Scale

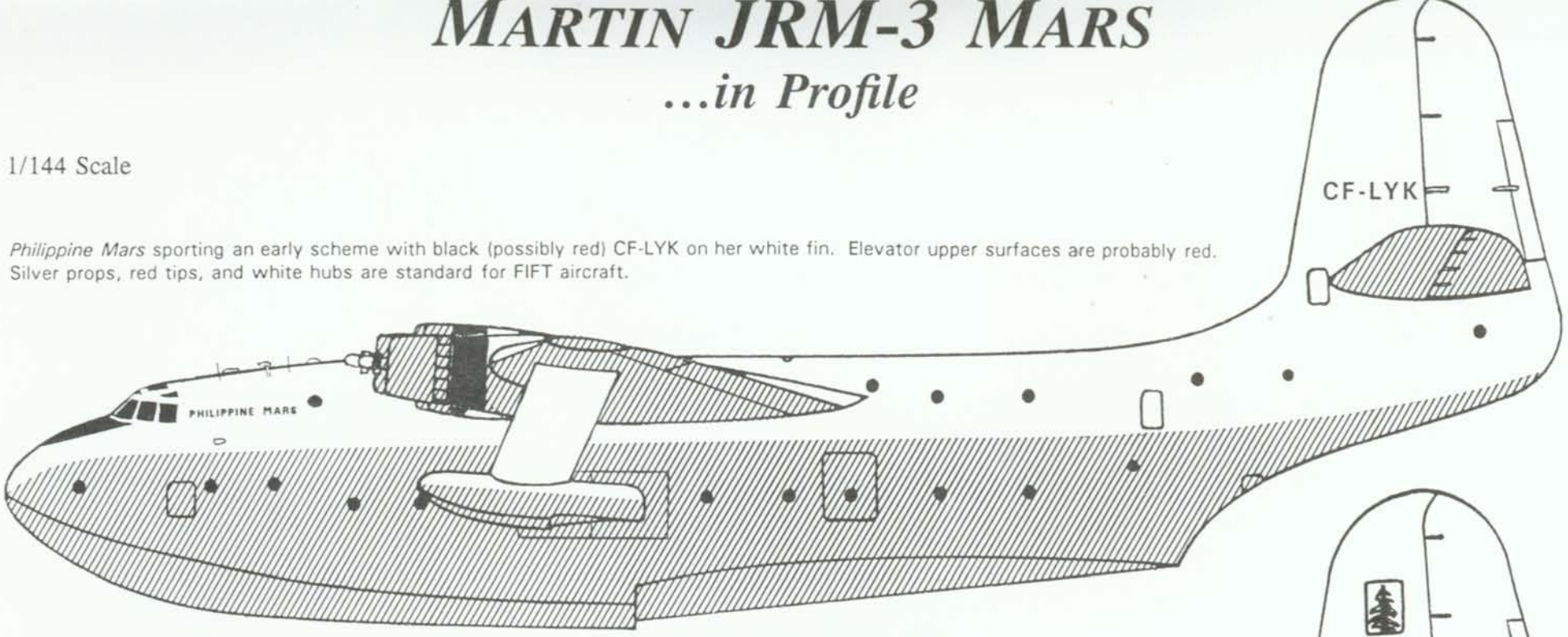


Span:	200 ft 0 in
Length:	120 ft 0 in
Height:	48 ft 0 in
Beam:	13 ft 6 in

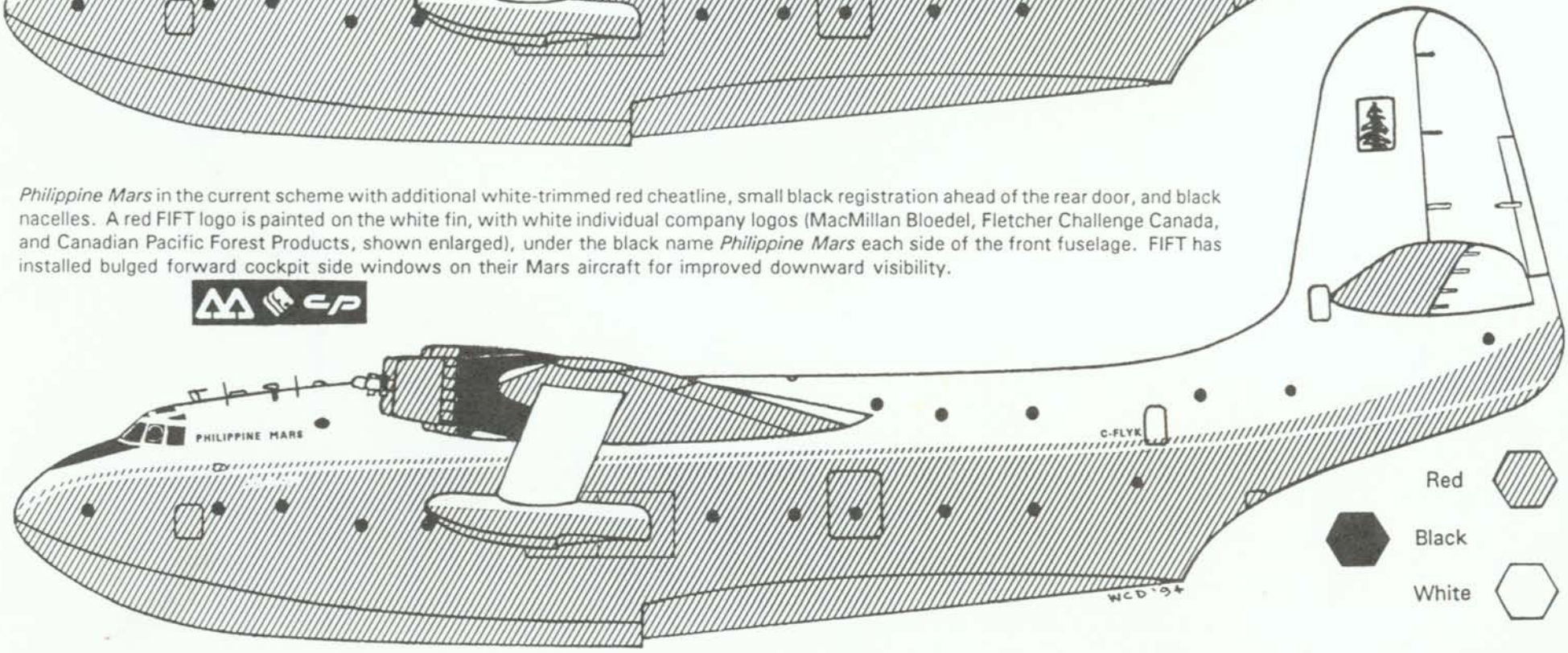
MARTIN JRM-3 MARS
...in Profile

1/144 Scale

Philippine Mars sporting an early scheme with black (possibly red) CF-LYK on her white fin. Elevator upper surfaces are probably red. Silver props, red tips, and white hubs are standard for FIFT aircraft.



Philippine Mars in the current scheme with additional white-trimmed red cheatline, small black registration ahead of the rear door, and black nacelles. A red FIFT logo is painted on the white fin, with white individual company logos (MacMillan Bloedel, Fletcher Challenge Canada, and Canadian Pacific Forest Products, shown enlarged), under the black name *Philippine Mars* each side of the front fuselage. FIFT has installed bulged forward cockpit side windows on their Mars aircraft for improved downward visibility.



AVIATION WORLD
$19.95
001385 MARTIN MARS FLYING BOATS:NF#29